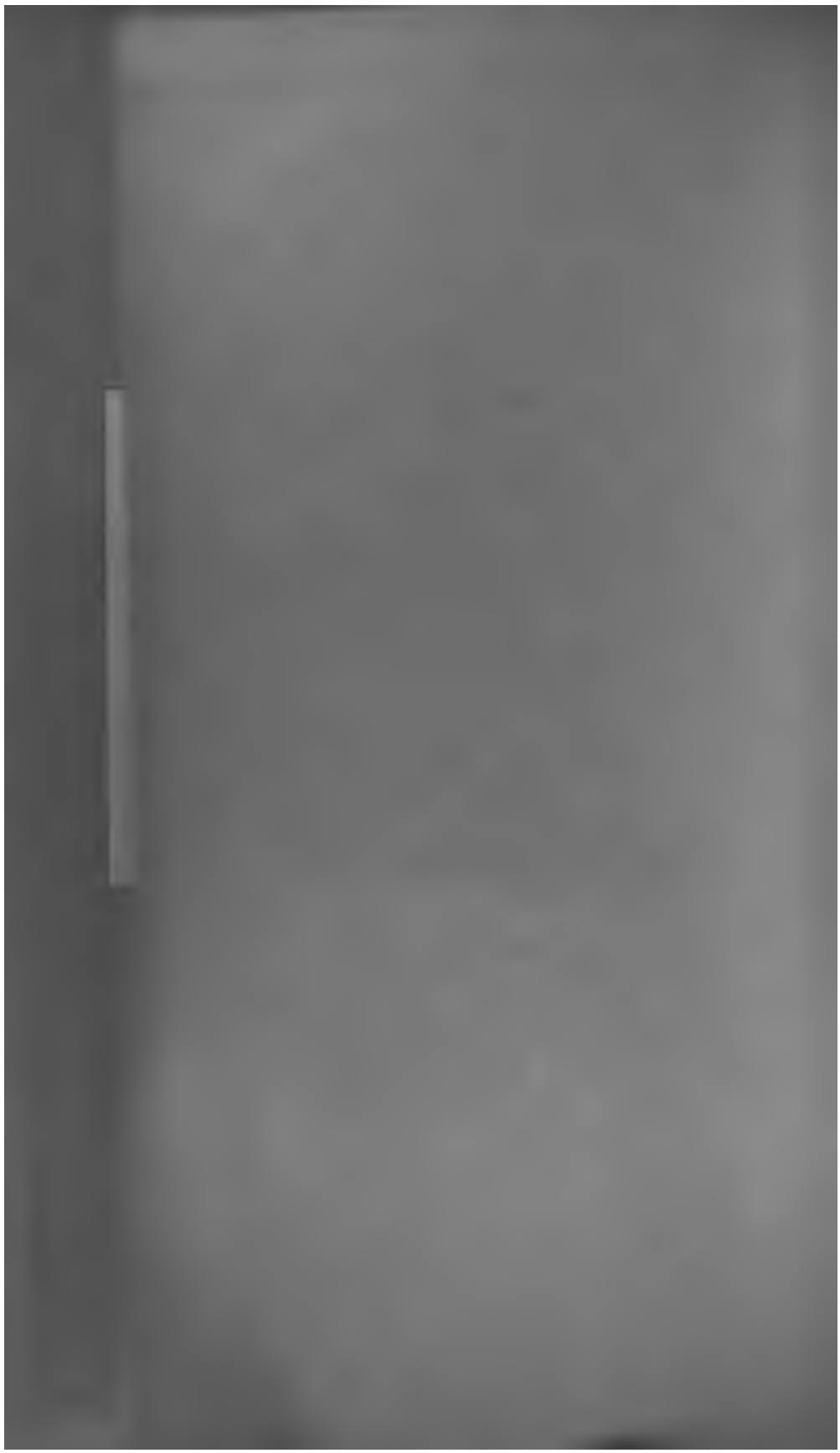

ARMY MEDICAL DEPARTMENT

REPORT

FOR THE YEAR 1895.

WITH APPENDIX.

VOLUME XXXVII.

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TO THE RIGHT HONOURABLE

THE SECRETARY OF STATE FOR WAR.

My Lord,

I have the honour to submit the accompanying Report on the Health and Sanitary Condition of the Army for the year 1895.

I have the honour to be,
My Lord,
Your Lordship's most obedient Servant,
J. JAMESON,
Director-General.

Medical Division, War Office,
1st December 1896.

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APPENDICES.

Troops at Home and Abroad.

The statistics of some of the most important of the results of sickness, in every Command in which the troops were stationed, are exhibited in the following Table :—

1895.

European Troops.	Average Strength.	Admitted into Hospital.	Died.	Sent Home as Invalids.	Discharged as Invalids.	Constantly non-effective from Sickness.
Troops at Home and Abroad	**200,681**	**199,312**	**1,669**	**2,175**	**2,850**	**12,302·49**
United Kingdom	99,795	70,132	448	—	1,719	4167·25
Gibraltar	4,690	3,899	18	67	58	277·29
Malta	8,292	6,397	57	122	69	440·85
Egypt and Cyprus	4,680	4,306	37	46	45	295·45
Canada	1,347	789	8	20	13	33·66
Bermuda	1,447	984	25	15	6	56·56
West Indies	1,287	1,374	14	22	14	80·40
South Africa and St. Helena	3,491	3,247	21	61	44	207·79
Mauritius	657	1,018	11	38	13	55·76
Ceylon	1,350	1,359	11	22	14	82·97
China	1,515	2,096	20	81	24	111·18
Straits Settlements	1,368	1,469	11	18	10	96·98
India	68,331	99,766	978	1,663	821	6396·35
On board Ship	2,431	2,476	10	—	—	—

1895.

European Troops.	Ratio per 1,000 of Strength.					Average sick-time to each Soldier.	Average duration of each Case of Sickness.
	Admitted.	Died.	Sent Home as Invalids.	Discharged as Invalids.	Constantly non-effective from Sickness.		
Troops at Home and Abroad	* **993·2**	† **8·16**	‡ **22·09**	§ **14·10**	‖ **62·05**	Days.‖ **22·65**	Days.‖ **22·81**
United Kingdom	702·8	4·32	—	16·57	41·76	15·24	21·69
Gibraltar	831·3	3·84	14·28	12·37	59·12	21·58	25·96
Malta	771·5	6·87	14·71	8·32	53·17	19·40	25·15
Egypt and Cyprus	920·1	7·91	9·83	9·61	63·13	23·04	25·04
Canada	585·7	5·94	14·85	9·65	24·99	9·12	15·57
Bermuda	680·0	17·28	10·36	4·15	39·09	14·27	20·98
West Indies	1067·6	10·88	17·09	10·88	62·47	22·80	21·36
South Africa and St. Helena	930·1	6·02	17·48	12·61	59·52	21·72	23·36
Mauritius	1549·4	16·74	57·84	19·78	84·87	30·98	19·99
Ceylon	1006·7	8·15	16·30	10·37	61·46	22·43	22·28
China	1383·5	13·20	53·46	15·84	73·39	26·78	19·36
Straits Settlements	1073·8	8·04	13·16	7·31	70·89	25·88	24·09
India	1460·0	14·31	24·34	12·01	93·61	34·17	24·40
On board Ship	1018·5	4·11	—	—	—	—	—

* Calculated on strength excluding men detached (3,911).
† Calculated on strength including men detached.
‡ Calculated on strength excluding United Kingdom and troops on board ship.
§ Calculated on strength including men detached, and excluding troops on board ship.
‖ Calculations exclude men detached and troops on board ship.

Troops at Home and Abroad.

1885 to 1894.

European Troops.	Aggregate strength for 10 years.	Admitted into Hospital.	Died.	Sent Home as Invalids.	Discharged as Invalids.	Constantly non-effective from Sickness.
Troops at Home and Abroad	**1,955,418**	**2,002,618**	**18,586**	**24,173**	**29,028**	**111,541**
United Kingdom	982,500	757,655	5,199	—	16,344	43,181
Gibraltar	46,495	34,507	228	913	405	2,137
Malta	65,377	43,134	526	1,296	744	2,832
Egypt and Cyprus	58,767	67,909	1,123	3,183	1,221	4,075
Canada	13,650	6,976	61	213	194	367
Bermuda	13,771	7,653	141	196	135	396
West Indies	11,205	12,390	100	223	149	673
South Africa and St. Helena	34,255	29,364	237	927	549	1,860
Mauritius	4,891	7,117	80	263	87	349
Ceylon	11,501	11,682	134	238	144	660
China	13,058	15,795	152	348	295	757
Straits Settlements	11,677	12,919	83	234		794
India	662,075	965,798	10,341	16,139	8,761	53,460
On board Ship	26,196	29,719	181	—	—	—

1885 to 1894.

European Troops.	Ratio per 1,000 of Strength.					Average sick-time to each Soldier.	Average duration of each Case of Sickness.
	Admitted.	Died.	Sent Home as Invalids.	Discharged as Invalids.	Constantly non-effective from Sickness.		
						Days.	Days.
Troops at Home and Abroad	**1024·1**	**9·42**	**25·53**	**14·91**	**57·82**	**21·03**	**20·64**
United Kingdom	771·1	5·20	—	16·34	43·95	16·04	20·80
Gibraltar	742·2	4·90	19·64	8·71	45·96	16·78	22·60
Malta	659·8	8·04	19·82	11·38	43·32	15·81	23·96
Egypt and Cyprus	1155·6	19·10	54·16	20·78	69·34	25·31	21·90
Canada	511·1	4·47	15·60	14·21	26·89	9·81	19·20
Bermuda	555·7	10·23	14·23	9·80	28·76	10·49	18·89
West Indies	1105·7	8·92	19·90	13·30	60·05	21·92	19·83
South Africa and St. Helena	857·2	6·92	27·06	16·03	54·30	19·82	23·12
Mauritius	1455·1	16·36	53·77	17·79	71·15	26·04	17·90
Ceylon	1015·7	11·65	20·93	12·52	57·39	20·95	20·62
China	1209·6	11·64	26·65	14·17	57·97	21·16	17·50
Straits Settlements	1106·4	7·11	20·06	9·34	68·07	24·85	22·46
India	1458·7	15·62	24·38	13·23	80·76	29·47	20·20
On board Ship	1134·5	6·91	—	—	—	—	—

II.—ON THE HEALTH OF THE TROOPS SERVING IN THE UNITED KINGDOM.

Sickness and Mortality.

'nited Kingdom

The average strength of warrant officers, non-commissioned officers and men who served in the United Kingdom during the year 1895 was 99,795, according to the returns furnished by medical officers. In addition to this there were certain men detached from their corps, the average number of whom is computed to have been 3,911.

The following table gives the most important of the statistics of sickness and mortality among the troops quartered in the three great divisions of the kingdom, England and Wales, Scotland, and Ireland, and also among those in the United Kingdom as a whole:—

1895.	Average Strength.	Admissions.	Deaths.	Invalids.	Constantly Sick.
England and Wales - -	72,470	52,100	296	1,282	3165·71
Scotland - - - -	3,473	2,053	11	51	92·07
Ireland - - - -	23,852	15,979	141	386	909·47
United Kingdom -	99,795	70,132	448	1,719	4167·25

(*continued.*)

1895.	Ratios per 1,000 of Strength.				Average Sick Time to each Soldier.	Average Duration of each Case of Sickness.
	Admissions.	Deaths.*	Invaliding.*	Constantly Sick.		
					Days.	Days.
England and Wales - -	718·9	3·95	17·12	43·68	15·94	22·18
Scotland - - - -	591·1	3·06	14·21	26·51	9·68	16·37
Ireland - - - -	669·9	5·59	15·30	38·13	13·92	20·77
United Kingdom -	702·8	4·32	16·57	41·76	15·24	21·69

* Calculated on strength, including men detached (England and Wales, 2,422; Scotland, 117; Ireland, 1,372), 3,911 in number.

Comparing the above with the corresponding table in the previous year it is observed that in England and Wales the admission rate shows an increase of 38·6 per 1,000, the death rate an increase of ·47, and the constantly sick rate one of ·72 per 1,000. The average sick time to each soldier was longer by ·26 of a day, but the average duration of each case of sickness was shorter by ·87 of a day. Compared with average ratios for the preceding nine years there was a decrease of 69·8 per 1,000 in the admission rate, one of 2·21 in the mortality rate, and one of 2·06 per 1,000 in the ratio of constantly sick. The average sick time to each soldier and the average duration of each case of sickness showed decrease in the former but increase in the latter instance, of ·75 and 1·01 respectively.

In Scotland, the admission rate exceeded that of last year by 4·3 per 1,000, but the ratios of mortality and constantly sick were lower in each instance by 3·09 and 3·08 per 1,000. The average sick time to each soldier and the average duration of each case of sickness were also lower than in the previous year, by 1·12 and 2·04 days respectively. In comparison with the corresponding average ratios for the previous nine years a decrease is observed in every case; the admission rate showing one of 63·2, mortality 2·59, and constantly sick 2·98 per 1,000, the decline in the average sick time to each soldier and average duration of each case of sickness being 1·08 and ·08 respectively. *United Kingdom.*

The admission, mortality, and constantly sick rates in Ireland show increase on those of the previous year of 75·3, 1·60, and 1·57 respectively. The average sick time to each soldier was longer by ·58 of a day, but the average duration of each case of sickness was shorter by 1·67 days, than in 1894. Comparing the ratios of the year under report with the average ratios for the preceding nine years the admission and constantly sick rates have decreased, the former by 27·3, and the latter by 1·10, but the death rate has increased by ·91 per 1,000. The average sick time to each soldier was shorter by ·40 of a day, but the average duration of each case of sickness was longer by ·23 of a day.

In the United Kingdom the ratios of admission, mortality, and constantly sick have, in comparison with the previous year, increased by 46·9, ·62, and ·85 per 1,000 respectively. The average sick time to each soldier was longer by ·31 of a day, but the average duration of each case of sickness was shorter by 1·08 days.

In comparison with the corresponding ratios for the preceding ten years, a decrease is shown in the admission rate of 68·3, in the mortality rate one of ·88, and in the constantly sick ratio, one of 2·19 per 1,000. The average sick time to each soldier, and the average duration of each case of sickness, was in the former instance, shorter by ·80 of a day, and in the latter longer by ·89 of a day than the corresponding decennial average periods.

The total loss by death and final discharge from the Service on account of medical unfitness was 2,167 men, equal to a ratio of 20·89 per 1,000 of the strength, being fractionally above the rate in the previous year.

The more important statistics of sickness, mortality, and invaliding, according to the different groups and orders of diseases, are given for the whole of the troops in the United Kingdom in Abstract I., and for the troops quartered in the three great divisions of the Kingdom, England and Wales, Scotland, and Ireland, in Abstracts A., B., and C.

General Diseases.—*Diseases dependent on Morbid Poisons.*—The admissions for *eruptive fevers* numbered 1,116, and there were 8 deaths. The ratios per 1,000 of the strength were, therefore, 11·2 and ·08 respectively as compared with 7·9 and ·03 in the previous year, and with 8·1 and ·05, the average rates for the preceding nine years.

There were 3 cases of *small-pox* recorded during the year as compared with 11 cases in 1894, and 9, the average number of cases for the preceding nine years. Two of the cases occurred at Aldershot, one of which came from the North and the other from the South Camp; the disease was of a modified type and ran a favourable course: both patients bore good marks of vaccination. The third case was that of a lad who had only been enlisted a week prior to his admission to hospital, and occurred in Tipperary, but it is believed that he had contracted the disease in Dublin prior to enlistment. The case was a severe one of confluent type. He had not been vaccinated in the Service.

Scarlet Fever caused 531 admissions and 6 deaths, being in the ratios of 5·3 and ·06 per 1,000 respectively. The corresponding ratios of the previous year were 2·3 and ·03, and those for the preceding nine years 2·8 and ·04 per 1,000. In England and Wales, 449 cases occurred, in Scotland 3, and in Ireland 79, as compared with 168, 15, and 50 respectively in the previous year. No district was entirely free from the disease, but the North Western district and the Channel Islands gave only 2 admissions each. The greatest prevalence at any one station was in Aldershot where there were 183 admissions as compared with 45 in the preceding year. "They were" it is stated, "mostly of a mild "type and no casualty occurred." An outbreak occurred at Strensall Camp in July, and no less than 103 cases were admitted, but all recovered;

United Kingdom.

the efforts to discover its origin were not successful. At Woolwich 36 cases with 1 death are reported, the majority of which ran a mild course ending in complete recovery. The disease is said to have been epidemic amongst the civil population during the greater portion of the year. In Belfast there were 21 cases, one ending fatally, the admissions were spread over different months of the year. In Dublin there were 22 admissions, but no death, and in London, Warley, Reading, and Windsor, the admissions were 16, 13, 12 (one fatal) and 12 respectively. At Omagh, 6 cases, two of which proved fatal, occurred, and at Sheerness there were 3 admissions with 1 death.

Measles caused 186 admissions with 2 deaths. The admission ratio was 1·9 or above that of the previous year by 1·0, and than that of the average for the preceding nine years by ·3 per 1,000. In England the admissions numbered 151, in Scotland 3, and in Ireland 32.

There were 18 admissions for epidemic rose-rash, 371 for cow-pox, and 7 for chicken-pox, compared with 3, 441, and 10 respectively in the previous year.

Enteric Fever.—137 admissions and 35 deaths occurred as compared with 124 and 21 respectively in the preceding year. The admission ratio, 1·4 per 1,000, is fractionally above that of the previous year, but is identical with the average of the previous ten years. The mortality rate, ·34 per 1,000, shows an increase in both these comparisons of ·13 and ·06 respectively. The percentage of mortality to attack was 25·5 as compared with 16·9 in the previous year, and 21·2, the average for ten years.

The number of cases in England and Wales was 73 with 22 deaths, as compared with 87 admissions and 11 deaths in the previous year; the ratios, 1·0 and ·29 per 1,000 respectively, show a decrease of ·2 in the admission rate, but an increase of ·14 in that of mortality. In Scotland only 3 admissions with no death occurred, showing an increase on last year's rate of ·6 per 1,000. In Ireland 61 cases and 13 deaths occurred, as compared with 36 and 10 in 1894, the ratios being 2·6 per 1,000 for admissions and ·51 for deaths, and higher in both instances by 1·1 and ·12 per 1,000 than those of the previous year.

The disease appeared in every district to a greater or less extent, and the number of stations attacked was 37. As in previous years Dublin shows the greatest prevalence of this disease, giving 38 cases, 7 proving fatal.

Island Bridge barracks was vacated so that the drainage system might be re-modelled, and particular attention was paid to disinfecting of drains and latrines in barracks; but, from past experience, there seems but little doubt that the insanitary surroundings have far more to do with the prevalence of the disease than any defects within barracks. At Portland an epidemic prevailed from the close of the year 1894 to the beginning of 1895 and appears to have originated in the neighbouring village of Easton, the cause being apparently polluted drinking water; among the troops 12 admissions, one of which terminated fatally, are recorded. At Aldershot, 14 cases with 5 deaths occurred, and at Belfast the admissions were 9 in number; London, Woolwich, and Shoeburyness each show 5 admissions, the last two giving 1 death respectively, and at Plymouth there were 4 admissions, 2 ending fatally. The disease was in some cases attributed to eating shell fish, or to drinking contaminated water, and in others the milk supply was suspected, but in a large number the origin was either very indefinite or could not be traced.

Other Continued Fevers were the origin of 281 admissions and one death, being in the ratios of 2·8 and ·01 per 1,000 respectively. The admission rate is fractionally above that of the previous year but below the average rate for the preceding nine years by 2·1. In England and Wales alone the admission ratio is almost the same as in the previous year, but lower by 1·5 than the average. The ratio in Scotland was lower in both instances by 1·0 and 3·9 per 1,000 respectively. In Ireland the ratio was 3·4 per 1,000 as compared with 2·5 in the previous year, and 6·9 the average for the preceding nine years. The district showing the highest admission rate was the North-Eastern with 7·6, followed by the Belfast with 7·2, the Southern with 4·4, and the Dublin and North-Western with 3·5 respectively. In Woolwich there was no admission under this head, and the ratio for the Curragh was as low as ·7 per 1,000, Aldershot coming next above with 1·6, and the Thames and Channel Islands districts with 1·7 each. The death occurred in the Cork district from simple continued fever, which also caused all the admissions except one for typhus fever at Belfast.

Dysentery was the origin of 35 admissions furnishing a ratio of ·4 per 1,000, being identical with the previous year's rate, but below the average rate by ·3. Of the cases, 31 occurred in England and Wales, 2 in Scotland, and 2 in Ireland. There was no special prevalence of the disease in any district, the highest being in the Thames, South-Eastern and Woolwich districts which gave 5 cases each. There was no death. *United Kingdom.*

The admissions for *other diseases* of the 1st sub-group numbered 3,368, and there were 19 deaths. The ratio of admission was 33·7 per 1,000 and that of mortality ·18. Influenza caused 2,848 of the admissions, and 12 of the deaths were returned under this heading; the ratios per 1,000, therefore, were for admissions 28·5 and for mortality ·17, exceeding those of the previous year by 19·5 and ·15 per 1,000 respectively. In England and Wales there were 2,145 cases, in Scotland, 16, and in Ireland 687. The disease was more or less prevalent in every district, Woolwich giving the highest admission rate and Scotland the lowest, 63·8 and 4·6 per 1,000 respectively.

Diphtheria was the cause of 445 admissions and 7 deaths as compared with 8 admissions and 2 deaths in the preceding year, but as many as 412 of the cases were at Aldershot, all stated to be of a mild type, and only one death occurred there. The cases were immediately subjected to the anti-toxin treatment. No single definite cause could be assigned for this outbreak, which was believed to be due to the working of several factors. At Fermoy 18 cases were returned, with fatal result in five instances. Of these 14 were admitted in June and four of the deaths occurred in that month, the outbreak being attributed to atmospheric influence. The disease originated and was mostly confined to the Old Barracks. The anti-toxin treatment was employed in the fourth and subsequent cases with beneficial results. In the Southern district 8 admissions took place with one death, and the Belfast, Woolwich, and North-western districts gave 4, 2 and 1 admissions respectively.

Mumps accounted for 72 admissions, as compared with 32 in the previous year.

Malarial Fevers.—596 admissions and 1 death are recorded giving ratios of 6·0 and ·01 respectively as compared with 5·0 and ·01 in 1894 and with identical average rates. The admissions in England and Wales numbered 474, in Scotland 10, and in Ireland 112, the respective ratios being 6·5, 2·9 and 4·7 per 1,000, which in comparison with those for the preceding year show an increase for England and Wales of ·5, and one for Ireland of 2·6, but for Scotland there is a decrease of ·8; while in comparison with the nine years' average rates England and Wales stands ·7 below, Scotland shows no change, but Ireland is in excess by 1·9 per 1,000. Out of the total number of admissions for malarial fevers, six only are shown as remittent fever, and there were 22 cases of malarial cachexia, the remainder being due to ague. The death was due to remittent fever.

Septic Diseases.—There were shown under this heading 124 admissions with 6 deaths, giving ratios per 1,000 of 1·2 and ·06 respectively, just below the rate of admission and identical with that of mortality for the previous year, and below the average ratios for the preceding nine years by ·9 and ·02 per 1,000. Of the total, England and Wales gave 101 of the admissions and 4 of the deaths, or ratios of 1·4 and ·05 per 1,000, which differ only very slightly from the previous years' ratios and are below the average by ·8 and ·04. Scotland showed 4 admissions, and the ratios of both admission and mortality have declined as compared with those in the previous year and average of nine years, by ·6 and ·28 in the former and by 1·7 and ·12 in the latter comparison. 19 of the cases and 2 of the deaths occurred in Ireland, the ratios per 1,000 being ·8 and ·08 respectively, the former being lower by ·3 than in 1894, and below the average rate by ·9, while the latter shows an increase of ·08 and ·05 respectively. Erysipelas as usual caused the bulk of the admissions, 115 being recorded, the ratio standing the same as in the previous year; the other cases were 5 of septicæmia and 4 of pyæmia. The deaths were due to pyæmia in 3 cases, septicæmia in 2, and erysipelas in one instance.

Venereal Diseases.—For *primary syphilis* there were 4,292 admissions equal to a ratio of 43·0 per 1,000, which is 4·7 below the corresponding rate in the previous year and 22·9 below the average rate of the preceding nine years. The ratio of men constantly sick was 4·18 per 1,000, and shows a decrease in both comparisons of ·72 and 1·95. In England and Wales alone the admission

nited ingdom.

ratio was 44·9, as compared with 52·2 in the previous year and 71·6 the average rate, and the constantly sick rate, 4·39 per 1,000, shows a decline of 1·05 in the former and one of 2·32 in the latter comparison. In Scotland the admission rate, 28·8 per 1,000, shows a decline of 11·2 in comparison with that for the year before, and is 3·2 below the average rate, and the ratio of constantly sick, 2·43, is below the previous year's rate by 1·04 and less than the average rate by ·17 per 1,000. The admission rate for Ireland, 39·2, shows an increase of 3·7 per 1,000 on the corresponding rate for the previous year, but compared with the average rate a decrease of 15·4 is observed, the constantly sick rate, 3·83, is above that of the year 1894 by ·29, but is below the average rate by 1·17 per 1,000.

Simple venereal ulcer was the cause of 2,030 admissions, and 177·73 men were constantly sick from this affection, giving ratios per 1,000 of 20·3 and 1·78 respectively. Taking England and Wales alone the number of admissions was 1,620, and of men constantly sick 147·85, being in the ratios of 22·3 and 2·04 per 1,000. Scotland gave 71 admissions and 4·61 constantly sick, or 20·4 and 1·33 per 1,000. In Ireland the number of admissions was 339, and that of men constantly sick 25·27, giving ratios of 14·2 and 1·00 per 1,000. Adding the sickness for this affection to that for primary syphilis, the admission rate for primary venereal sores in the United Kingdom amounted to 63·3 per 1,000, below the corresponding rate for the previous year by 5·2 and less than the average by 24·1; the constantly sick rate, 5·96 per 1,000, was lower than that of the previous year by ·76, and than the average of the preceding nine years by 1·74, per 1,000. In England and Wales the admission and constantly sick rates were 67·2 and 6·43 respectively, being a decline from those for the previous year of 8·5 and 1·10, and of 26·9 and 1·96 per 1,000 from the preceding nine years' average rates. The admission and constantly sick rates in Scotland were 49·2 and 3·76 per 1,000, lower by 11·1 and 1·18, and by 5·5 and ·35, when compared with the previous year's and average rates; Ireland gave an admission ratio of 53·4 and a constantly sick rate of 4·83 per 1,000, an increase of 4·6 and ·19 respectively on those for the last year, but below the average rates by 19·6 and 1·45.

Secondary Syphilis.—In the United Kingdom there were 3,478 admissions for this cause with 6 deaths. The admission ratio was 34·9, and that for constant inefficiency 3·91 per 1,000, practically the same in both instances as in 1894, but in comparison with the nine years' average rate there was a decline of 1·2 in the former and an increase of ·49 in the latter. England and Wales with admission and constantly sick rates of 38·4 and 4·43 show decrease of 1·0 and ·08 in comparison with the rates for 1894, and a decrease of ·6 in the admission rate and an increase of ·67 in the constantly sick rate with the average ratios. The rates for Scotland are below those for the foregoing year by 9·2 and ·60 per 1,000, and less by 12·4 and ·79 than the nine years' average rates.

The admission rate in Ireland was 26·4, and that of constant inefficiency 2·69, which are higher by 4·0 and 3·4 than in the year before, while in comparison with the average rates a decrease of 2·5 is observed in that of admission, but a fractional increase is shown in the ratio of constantly sick.

Gonorrhœa caused 7,546 admissions and the number of men constantly sick was 539·97. The ratios of admission and constant inefficiency were 75·6 and 5·41 per 1,000, lower than in the previous year by 3·5 and ·40, and than the average for the preceding nine years by 16·7 and ·74 per 1,000. Taking England and Wales alone the admission rate for gonorrhœa was 81·0 per 1,000, and that of constantly sick 5·79. Compared with the foregoing year, the admission rate has decreased by 1·5 and the constantly sick rate by ·37, and, in comparison with the average ratios for the preceding nine years the decrease is still more marked, being 14·1 and ·61 respectively. The admission and constantly sick rates in Scotland were 62·8 and 4·04 per 1,000, lower than in 1894 by 21·4 and 1·15, the admission rate in comparison with the average of the preceding nine years is lower by 11·7, but an increase of ·22 is observed in the rate of constant inefficiency. Ireland gave admission and constantly sick rates of 61·2 and 4·46 per 1,000, showing decrease in comparison with previous year's and average rates of 7·3 and ·44 in the former and 25·6 and 1·31 in the latter.

Taking together all forms of venereal diseases the admissions numbered 17,346, and the constantly sick 1,525·52. The total ratios, therefore, were for

admissions 173·8 and for constant inefficiency from these diseases 15·28 per 1,000, showing decrease as compared with the foregoing year of 8·6 and 1·14, and below the average rates for the preceding nine years by 42·0 and 1·99 respectively. England and Wales alone gave admission and constantly sick rates of 186·6 and 16·65, as compared with 197·5 and 18·19 for the previous year, and with 228·2 and 18·55, the preceding nine years' average. The ratios in Scotland were 130·1 and 9·19 per 1,000, below those in 1894 by 41·7 and 2·93, and also below the average rates by 29·7 and ·92 per 1,000. In Ireland the total admission ratio was 141·0 and the ratio of constant inefficiency 11·98 per 1,000, both being higher than in the previous year by 1·3 and ·09, but in comparison with the average rate there is a decrease in the admission ratio of 47·7 and in that of constantly sick of 2·69 per 1,000. *United Kingdom.*

The Channel Islands gave the highest ratio, 230·1, for these diseases, followed by the Western, Woolwich, Home, Southern, and North-eastern districts with 227·5, 227·3, 225·4, 215·8, and 195·2 respectively. The district showing the lowest admission rate was that of Cork with 103·3, those above being the Curragh 122·1, South-eastern 129·5, Scottish 130·1, and Belfast with 145·6 per 1,000.

Compared with corresponding rates in districts for the previous year, increase of admission rate is observed as follows, viz. :—Channel Islands 23·0, Belfast 14·6, Cork 11·4, Southern 9·2, Curragh 7·5, and Western 6·3 per 1,000. In all the remaining districts except Aldershot, which was unchanged, decrease has occurred, particularly in the North-eastern with 67·8, Scottish 41·7, Eastern 39·3, Thames 31·3, and Woolwich 16·3.

Parasitic Diseases were represented by 27 cases, 25 of which are shown as tænia solium; in the previous year 42 admissions were recorded under this heading.

Under sub-group 2 of Group B, diseases due to errors in diet, there were 137 admissions and 3 deaths shown under *alcoholism*. 15 of the admissions and all of the deaths were due to delirium tremens. 4 admissions were shown as *scurvy*. The ratios of admission and mortality were respectively 1·4 and ·03 per 1,000.

Debility and *malformations* caused 667 admissions, giving a ratio of 6·7 per 1,000, practically the same as in the foregoing year.

Rheumatism contributed 2,837 cases with 5 deaths, the respective ratios per 1,000 being 28·4 and ·05, the former being lower by 2·0 than, and the latter identical with, similar ratios of previous year, and compared with the nine years' average rates the admission rate shows a still greater decline, 8·1, while the mortality rate shows no change. The admission ratio for England and Wales was 29·8, which compared with previous year's and average rates shows decrease in both instances of 2·4 and 8·8 respectively. Scotland, with an admission rate of 24·8, is identical with the rate in 1894, but below the average rate by 1·9 per 1,000. Ireland gave a rate of 24·9 for admissions, which is below the previous year's rate by 1·3, and also less than the nine years' average rate by 6·9 per 1,000. 258 of the admissions and all of the deaths were due to rheumatic fever.

Tubercular Diseases.—There were 305 admissions and 70 deaths recorded under this head, the respective ratios per 1,000 being 3·0 and ·67, lower by ·2 and ·13 than similar rates in the previous year, and also showing a decline of ·5 and ·26 in comparison with the nine years' average rate. The ratios of admission and mortality for England and Wales were 3·1 and ·63, almost identical with previous year's rates, but lower by ·4 and ·32 than the average. In Scotland the admission rate was 2·3 and the death rate *nil* as compared with 4·2 and 1·96 in the foregoing year, and 3·2 and ·94 the average ratio for the preceding nine years. Ireland, with an admission rate of 3·0 and a death rate of ·91, shows in comparison with rates of the previous year a decrease of ·5 in the former and one of ·23 in the latter, and compared with the average rates a decline of ·3 is observed in the rate of admission and an increase of ·03 in that of mortality. Of the total number of admissions 292 are shown as tubercle of lung, and of the deaths 68 are shown under this heading.

Other diseases of this group caused 455 admissions and 8 deaths, giving ratios of 4·6 and ·08 respectively, and corresponding exactly with those of the previous year. The cases included 293 of non-malignant growth, 85 of

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anæmia, 37 of scrofula, 25 of malignant growth, 6 of diabetes, &c. Of the deaths 5 were due to malignant disease, 2 to diabetes, and one to purpura.

LOCAL DISEASES. — *Diseases of the Nervous System* were the cause of 810 admissions and 41 deaths, the respective ratios being 8·1 and ·39 per 1,000, compared with 7·7 and ·31 in the previous year and 8·8 and ·34 the average of the preceding nine years. The admission and death rates for England and Wales were 8·1 and ·41 per 1,000, an increase in each case of ·2 and ·11 in comparison with the ratios of the foregoing year, but when compared with the average rates that of admission has decreased by ·8, while the mortality rate shows a slight increase. For Scotland the rates of admission and mortality were 8·9 and ·28 respectively, which shows increase in the former of 1·6, but decrease in the latter of 1·12, and compared with average rates the former shows an increase of ·4, but the latter a decrease of ·11. In Ireland the admission rate was 8·0 and that of death ·36, being an increase in the former of 1·4 and in the latter of ·17, and in comparison with the nine years' average a slight decrease is shown in the admission rate, but a slight increase in that of mortality. Of the total number of admissions 135 or 1·3 per 1,000 were cases of mental disease as compared with 1·1 in the previous year. In England and Wales the ratio for the year under report was 1·3, in Scotland 1·4, and in Ireland it was 1·5. The principal causes of admission were neuralgia 371 cases and epilepsy 165 cases; there were also 44 admissions for paralysis, 30 for inflammation of brain or its membranes 12 for sclerosis of spinal cord, and 7 for apoplexy. The deaths were due to inflammation of the brain or its membranes in 16 cases, mental disease, abscess of brain, and hemiplegia 4 each, apoplexy 3, cerebral hæmorrhage, epilepsy and myelitis 2 respectively, and paralysis, syncope, dropsy of cerebral ventricles, and sclerosis of spinal cord, one respectively.

Diseases of the Eye caused 1,068 admissions, equal to a ratio 10·7 per 1,000, below the previous year's and average ratios by ·6 and 1·1 respectively. The admission ratio for England and Wales was 10·3, showing decrease in both comparisons, of ·9 and 1·5. In Scotland the ratio was 10·4 or 3·6 above that of the foregoing year and 1·1 in excess of the average rate. Ireland, with a ratio of 12·0, shows a fractional decrease in both comparisons. Of the total admissions nearly two-thirds were caused by conjunctivitis; there were 77 cases of iritis, and keratitis and other diseases of the cornea gave 105 cases.

Diseases of other Organs of Special Senses were represented by 772 admissions, giving a ratio per 1,000 of 7·7, slightly below the previous year's rate and almost identical with the average of the preceding nine years. In England and Wales the rate was 8·0, showing a decrease of ·8 compared with the previous year's ratio, but practically the same as the average rate for the preceding nine years. Scotland, with a ratio of 5·8, shows an increase of 1·6 as compared with the previous year and one of ·4 on the average rate. Ireland furnished a ratio of 7·3 per 1,000, being an increase on the ratio for 1894 of ·9 and one of ·6 on the average rate. All of the admissions but 29 were for aural disease, 506 being for inflammation of external meatus, and 148 for inflammation and perforation of the membrana tympani.

Diseases of the Circulatory System caused 994 admissions and 27 deaths, giving ratios of 10·0 and ·26 per 1,000, differing but very slightly from the similar ratios in the previous year; in comparison with the average the admission rate is ·4 above and that of mortality ·14 below. The admission and death rates in England and Wales were 9·2 and ·23 per 1,000, compared with 10·2 and ·30 in 1894, and 10·0 and ·42 the average rates. Scotland, with ratios of 5·5 and ·83, shows decrease in the admission rate in comparison with the previous year's and average rates of 1·3 in the former and 3·7 in the latter, but the death ratio shows increase in the former of ·83 and in the latter of ·44 per 1,000. Ireland, with a ratio of admission of 13·0, compares least favourably of any of the divisions, showing an advance on the foregoing year of 3·6 and one of 4·5 on the average rate; the death rate, however, ·28, shows a decline in both comparisons. The chief causes of admission were palpitation and valvular disease of the heart, furnishing 451 and 305 cases respectively, and, as was also the case in the foregoing year, varicose veins come next with 171 cases. The causes of death were aneurysm of the aorta 9, valve disease of the heart 8, fatty

degeneration of heart 4, syncope 2 cases, and dilatation, pericarditis, adherent pericardium, and aneurysm of super mensenteric artery one case respectively. *United Kingdom.*

Diseases of the Respiratory System gave rise to 5,909 admissions, and 101 deaths occurred, the ratios per 1,000 being 59·2 and ·97, showing increase on corresponding ratios in the foregoing year of 14·7 and ·34 respectively, but when compared with the average rates for the preceding nine years, a decrease of 5·4 and ·34 is observed. The ratios for England and Wales were 58·5 and ·91 per 1,000, which show increase as compared with corresponding ratios in 1894, of 15·1 and ·24, but decrease as compared with average rates of 8·0 and ·47. Scotland with an admission rate of 57·3 and a mortality rate of ·56, shows an increase in the former of 13·4, but the latter is identical when compared with those for the foregoing year; in comparison with the average rates, that of admission differs only by ·1, while the death rate has decreased by ·98 per 1,000. In Ireland these rates stood at 61·7 and 1·23 in the year under report, showing increase of 13·9 and ·72 on the ratios of 1894, and 1·3 and ·15 per 1,000 on the average rates. Bronchial affections, as usual, furnished the majority of the cases, 4,792 admissions being returned. Pneumonia gave 567, pleurisy 244 and laryngitis 145 admissions, and 42 are shown under asthma. The causes of death were pneumonia, 74, bronchitis, 14, pneumonic phthisis, 5, pleurisy, 2 cases, and one each occurred from cirrhosis of lung, gangrene of lung, hydatid of lung, laryngitis, asthma and empyema.

Diseases of the Digestive System.—10,305 admissions and 25 deaths were attributed to this cause, equal to ratios of 103·3 and ·24 per 1,000, being higher in the former rate by 10·2, but fractionally below in the mortality rate when compared with the previous year, being lower in both these rates by 3·3 and ·11 than the average for the preceding nine years. In England and Wales alone, the ratios were 104·6 and ·28 per 1,000, compared with 94·2 and ·25 in the previous year, and 112·0 and ·37 the corresponding ratios for the preceding nine years. Scotland with 91·0 and *nil* shows no change in the former ratio, but a decrease in the latter of ·56, both ratios being lower, by 3·0 and ·39, than the average rates. The admission rate for Ireland was 101·1 and that of mortality ·16 per 1,000, an increase in the former rate of 11·1 and a decrease in the latter of ·15 as compared with ratios for 1894, and an increase and decrease of 7·8 and ·12 respectively with average rates. The deaths were due to abscess of liver in 5 cases, cirrhosis of liver 4, peritonitis 3, enteritis, typhlitis and obstruction of intestines 2 each, and one each to strangulated hernia, hæmorrhage of stomach, ulceration of stomach, perforation of intestines, acute yellow atrophy of liver, hepatitis, and jaundice.

Diseases of the Lymphatic and Glandular System were the cause of 1,376 admissions and 1 death, the respective ratios being 13·8 and ·01 per 1,000. The admission rate has declined as compared with that of the previous year and average rates by ·8 and 3·1 respectively. England and Wales with a ratio of 15·1 for admissions shows a decrease of ·3 from the previous year's rate, and one of 2·7 from that of the average. Scotland gave an admission rate of 6·0 or 1·9 below the ratio of 1894 and 3·1 below the average rate. Ireland furnished an admission rate of 11·0 per 1,000, below in both comparisons, by 2·3 and 4·7 respectively. The death was returned under under lymphadenoma.

Diseases of the Urinary System were the cause of 197 admissions, and 17 deaths are shown as being due to these diseases. The admission ratio was 2·0 and that of death ·16 per 1,000. The admission rate shows decrease, as compared with previous years' and nine year's average rates, of ·4 in the former and ·3 in the latter, while the death rate shows a slight increase in the former, but is identical in the latter comparison. In England and Wales the ratio of admission was 1·7, and was lower by the same amount, ·6, than the previous years' and average rates, the death rate, which was ·13, being also slightly below in both these comparisons. Scotland shows an admission rate of 2·6, or 1·6 below the rate of the foregoing year, but exactly similar to the average rate. Ireland with 2·6 for an admission rate, corresponds exactly with the ratio of the preceding year, but is above the average by ·8, while the mortality rate ·28, is above in both instances, by ·20 and ·15 per 1,000. Incontinence of urine, as is commonly the case, gave nearly half of the admissions 82, while nephritis, Bright's disease and cystitis fo[redacted]

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33, and 17, respectively. The causes of death were shown as nephritis in 8, Bright's disease in 7, and abscess of kidney in 2 cases.

Diseases of the Generative System.—Under this head 3,217 admissions are recorded, the equivalent ratio being 32·2 per 1,000, which shows a decline of 1·6 from the foregoing year's ratio, and one of 5·2 from the average rate for the preceding nine years. England and Wales, with an admission ratio of 34·3 per 1,000, has decreased by 2·8 and 4·0, as compared with the previous years' and average rates. Scotland with a ratio of 33·4 has increased in the former by 3·3, but a decrease is shown in the latter comparison of 3·9. Ireland with a rate of 25·8 shows a fractional increase on that for the preceding year, but a decrease is observed when compared with the average rate. The chief causes of admission, apart from simple venereal ulcer were, orchitis 449, balanitis 436, and urethral stricture 99 cases. A death is recorded fromextravasation of urine.

Diseases of the Organs of Locomotion caused 931 admissions and 2 deaths, equal to ratios of 9·3 and ·02 per 1,000 respectively. The admission rate is identical with that of the previous year, but is in excess of the average rate by 1·7 per 1,000. The ratio for England and Wales 8·4 per 1,000, as compared with previous years' rate shows a decline of ·6, but is higher than the average by 1·0. Scotland with a ratio of 10·9 shows increase in both comparisons of 1·3 and 2·8 respectively, and Ireland also shows increase in these comparisons of 1·8 and 3·7, the admission rate being 11·9. Synovitis was the cause of more than half of the admissions, giving 563 cases; ostitis gave 81, inflamed bursa 46, caries 18, and necrosis 17. The deaths were due to caries of the spine and psoas abscess.

Diseases of the Connective Tissue were the origin of 2,497 admissions and 1 death. The admission ratio, 25·0, is in excess of the previous year's rate and the preceding nine years' average ratio by 2·3 and 1·9 respectively. England and Wales furnished a ratio of 25·7, and shows increase in these comparisons by 2·9 and 2·7 per 1,000. Scotland with a ratio of 27·3 also shows increase in both comparisons, in the former by 3·9 but in the latter by only ·5. Ireland with 22·5 shows least variation, an increase of ·4 being observed on the rate for the year before, and a decrease of ·5 from the average. 1,400 cases are entered under abscess, under which heading also the death is shown.

Diseases of the Skin caused 6,936 admissions, the ratio per 1,000 being 69·5, an increase of 3·7 on the corresponding rate of the foregoing year, but 5·2 below the nine years' average. In England and Wales the rate was exactly the same as in the United Kingdom as a whole, and was in excess of the previous year's rate by 2·2, but 6·5 below the average. Scotland with a ratio of 70·5 stood higher by 9·4 than in the previous year, but compared with the average rate was lower by 7·0; while in Ireland the ratio 69·6 shows an increase in the former comparison of 7·4, but a decrease of only 1·3 as compared with the average. Most of the admissions were due to itch 1,965 cases, boil 1,490, eczema 890, and ulcer 843 cases, and of the remainder the chief causes were whitlows, ringworm, herpes and psoriasis.

Poisons.—Eight admissions and 4 deaths are recorded as compared with 12 admissions and 6 deaths in the preceding year. Four admissions were shown under the head of poisoned wounds, two being for snake bite, 1 from wasp sting (severe), and one from poisoned wound, a man of the Medical Staff Corps having received a cut while assisting at a post-mortem examination; the case, however, was not severe. Two cases of poisoning by oxalic acid were admitted, one of which proved fatal, one of lead poisoning and one from decayed meat. The deaths from poison in addition to that above mentioned were one each from alcoholic, oxalic acid, and laudanum poisoning.

Injuries.—For all kinds of injuries the admissions were 9,382 in number with 64 deaths, giving ratios of 94·0 and ·62 respectively, showing scarcely any variation from the ratios in the previous year, but below the average for the preceding nine years by 4·3 and ·08.

Under general injuries 68 admissions and 30 deaths are shown, as compared with 15 admissions and 36 deaths in the foregoing year. A large proportion of the admissions, 45, are shown as heat stroke, and 40 of these occurred at

Aldershot during the manœuvres; there were 6 cases of sun stroke, and 10 of multiple injury, 3 of which occurred at Lydd and were caused by explosion of shell, 2 at Woolwich, 2 at Devonport, one, the result of a railway accident, proving fatal, and the other being caused by a fall when drunk. At Gosport a man was knocked down by a train and sustained fracture of left femur and skull. At Shoeburyness a man of the Artillery was thrown from a wagon which passed obliquely over his chest, and at Aldershot a man was admitted with fracture of skull and contusions all over the body; the case proved fatal and the coroner's jury gave a verdict of manslaughter. Of the remaining deaths, 17 were due to asphyxia from submersion, 1 to suffocation in a drunken sleep, 8 to multiple injury, 3 to asphyxia from strangulation and 1 to heat apoplexy. *United Kingdom.*

Local injuries furnished 9,314 of the admissions and 34 of the deaths, as compared with 9,289 admissions and 28 deaths in 1894. Wounds, sprains and contusions were as usual accountable for the majority of the admissions. Of the deaths, 13 are shown as wounds from gunshot, 10 fracture of skull, 6 wound of neck, 2 concussion and 1 compression of brain, and dislocation of spine and wound of skull one respectively.

There were 24 cases of suicide among the troops in the United Kingdom, compared with 23 in the previous year, and 22 the average of the preceding ten years. The mode of suicide was gunshot in 11 cases, cut throat in 6, hanging in 3, poisoning in 3 cases and multiple injury in 1 case. No motive was given in 19 cases, jealousy in 2, drink, fear of disgrace and punishment, and depression, 1 case each. The verdicts of the courts of inquest were temporary insanity in 21 cases, in 2 the state of mind was unknown and in one case a verdict of suicide was recorded.

Surgical Operations.—Among the numerous surgical operations which were performed during the year a reference may be made to the following:—

One amputation of fore-arm, necessitated by tubercle of wrist, in which recovery is recorded, two amputations of thigh, one at upper third, in which case the operation was performed immediately on admission to hospital, but the patient died before the operation was completed; the other, of the lower third, in which there was extensive injury to knee joint, with a perfect result.

There were 6 cases of primary and 3 of secondary operation of trephining of the skull on account of abscess of brain and fracture of skull. In 5 of the cases death followed after operation. Of four cases of tracheotomy one was successful, but the other three ended fatally.

One case of removal of sequestra, and two cases of excision of a portion of rib on account of empyema, were satisfactory in their results. An exploration of abdominal abscess ended fatally. Laparotomy was performed on two occasions for obstruction of intestines, but both patients died. There were 10 operations shown as paracentesis of pleura, on account of pleurisy, and 5 on account of empyema. Strangulated inguinal hernia necessitated three operations, all of which recovered; and for the radical cure of hernia two operations are shown with successful result.

A large number of amputations of fingers and toes are recorded with satisfactory results in the majority of cases. There were also 4 cases of ligature of artery, three on account of wounds, which were successful, and one for aneurysm of femoral artery, which also was satisfactory in its result. Other operations included removal of tumours and diseased lymphatic glands, excision of eye-ball, tapping for hydrocele, removal of testicle, iridectomy, removal of necrosed bone, circumcision, &c.

Invaliding.—The number of men discharged as medically unfit for further service during the year was 1,719, equal to a ratio of 16·57 per 1,000, which is below the previous year's rate by ·49, but above the decennial average by ·23. England and Wales, with a discharge ratio of 17·12, shows a decline of 1·10 with the rate in the foregoing year, but compared with the average of the preceding nine years, an increase of ·62 is observed. Scotland, with a ratio of 14·21, is lower by 3·96 and by 4·76 respectively in these comparisons, while Ireland, giving a ratio of 15·30 for invaliding, is in excess in the former by 1·73, and in the latter comparison by 1·80 per 1,000.

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The principal disabilities necessitating discharge were circulatory diseases, which were the cause of 376 men being invalided; the ratio, 3·63 per 1,000, is below the previous year's rate by ·22, but above the average by ·35. Nervous disorders come next, causing the discharge of 189 men, the ratio being 1·82 per 1,000, less than the previous year's rate and than the average by ·29 and ·28 respectively; this number includes 79 cases of mental ailments, compared with 93 in the preceding year. Tubercular diseases show 162 cases of discharge, and the ratio, 1·56, is seen to be fractionally below the rate in 1894, and also below the average rate. Diseases of the digestive system caused the discharge of 129 men, the ratio per 1,000 being 1·24, which shows an increase of ·29 on the previous year's rate, and one of ·32, on the average rate. Diseases of the organs of locomotion showing 128 men invalided, with a ratio of 1·23 per 1,000, have decreased by ·12 as compared with the foregoing year, but are in excess of the average rate by ·31 per 1,000. Diseases of the organs of special senses, other than the eye, caused 114 discharges; the ratio, 1·10, is similar to that of 1894, but is ·36 in excess of the average. Secondary syphilis accounts for the discharge of 108 men, or a ratio of 1·04 per 1,000, which is ·22 and ·28 respectively above the previous year's and the nine years' average rates. 86 men are shown as discharged for debility, the ratio per 1,000 being ·83. Eye diseases caused the discharge of 73 men; the ratio, ·70, is below that of the previous year by ·10, but almost the same as the average rate. Under respiratory diseases 64 cases of discharge are recorded, the rate being ·62 per 1,000, which is virtually the same as that of tne previous year and ·29 below the average rate. Rheumatism caused the discharge of 56 men, being in the ratio of ·54 per 1,000, which is a decrease of ·21 as compared with the previous year's ratio, and is also below the average rate by ·12. In the remaining cases of invaliding there was no very marked variation from the average rate, nor from the rate of the previous year.

The following tables have been prepared to show the influence of age and length of service on sickness, mortality, and invaliding among the troops serving in the United Kingdom during the year:—

Ages.	Average Strength.	Admissions.	Deaths.	Invalided.	Ratios per 1,000 of Strength.		
					Admissions.	Mortality.	Invaliding.
Under 20 years - -	29,195	22,062	70	392	755·7	2·40	13·43
From 20 to 25 years -	38,693	37,710	168	932	974·6	4·34	24·09
„ 25 „ 30 „ -	17,312	7,097	88	211	409·9	5·08	12·18
„ 30 „ 35 „ -	8,307	1,941	51	100	233·7	6·14	12·04
„ 35 „ 40 „ -	4,324	960	42	58	222·0	9·71	13·41
40 years and upwards -	1,964	362	29	26	184·3	14·77	13·24
Total - -	99,795	70,132	448	1,719	702·8	*4·32	*16·57

* Calculated on strength, including men detached (3,911).

From the above it will be seen that the highest admission ratio at any age period was 974·6 per 1,000 among men between 20 and 25 years, the rate among men under 20 years being next below. From the highest admission ratio among men between 20 and 25 years of age to that among men in the next quinquennial period of age, there was a considerable decrease, which continued, though to a less extent, through the succeeding quinquennial age periods. Mortality was lowest among men under 20 years of age, next among men between 20 and 25 years of age, but this ratio is almost double the foregoing. After this period the death rate steadily increased until the highest was reached among men over 40 years of age. The invaliding rate was highest among men between 20 and 25 years of age; the rate then declined until the

period 30 to 35 years was reached, after which it rose again, and subsequently fell. The sequence of all these ratios is almost the same as in 1894. *United Kingdom.*

Service.	Average Strength.	Admissions.	Deaths.	Invalided.	Ratios per 1,000 of Strength.		
					Admissions.	Mortality.	Invaliding.
Under 1 year - -	28,017	25,658	75	392	915·8	2·68	13·99
From 1 to 2 years -	17,858	14,935	58	417	836·3	3·25	23·35
„ 2 „ 3 „ -	11,787	8,393	30	225	712·0	2·54	19·09
„ 3 „ 4 „ -	8,590	5,547	30	157	646·5	3·50	18·30
„ 4 „ 5 „ -	7,447	4,222	23	133	566·9	3·09	17·86
„ 5 „ 10 „ -	14,064	7,949	110	218	565·2	7·82	15·50
10 years and upwards -	12,042	3,428	122	177	284·7	10·13	14·70
Total - -	99,795	70,132	448	1,719	702·8	*4·32	*16·57

* Calculated on strength, including men detached (3,911).

The above table shows that the occurrence of sickness was greater among young soldiers than older ones, the highest admission rate being among men under one year's service, while the next highest, that among men between one and two years' service, was not much lower ; through the remaining periods of service there was a steady decline in the sick rate. The mortality rate, on the other hand, was very low among men in their first year's service, but the lowest rate was among men between two and three years' service. After a low invaliding ratio among men under one year's service a considerable increase is observed in the rate among men between one and two years' service ; the ratio then steadily decreases with each year of service. Compared with corresponding results in the preceding year, an increase has occurred in the invaliding ratios of men between three to four, four to five, and 10 years' service and upwards, but there was a decrease in the invaliding ratios of men in the remaining periods of service.

The admissions, deaths, invalids discharged the service, average number constantly sick, average sick time to each soldier, and average duration of each case of sickness in the various military districts are shown in the following table :—

Military Districts.	Average Annual Strength.	Admissions into Hospital.	Deaths.*			Invalids discharged the Service.*	Average Number Constantly Sick.	Ratio per 1,000 of Mean Strength.				Average Sick Time to each Soldier.	Average Duration of each Case of Sickness.
			With the Regiment	Absent from the Regiment.	Total.			Admitted into Hospital.	Died.	Invalids discharged the Service.	Constantly Sick.		
												days.	days.
1. North-eastern - -	4,640	3,134	9	1	10	84	194·46	675·4	2·16	18·10	41·91	15·30	22·65
2. North-western - -	5,396	3,299	26	1	27	56	147·17	611·4	5·00	10·38	27·27	9·95	16·28
3. Eastern - - -	4,758	3,789	15	2	17	146	185·76	796·3	3·57	30·69	39·04	14·25	17·89
4. Western - - -	7,182	5,186	25	—	25	120	300·27	722·1	3·48	16·71	41·81	15·26	21·13
5. Southern - - -	7,997	5,816	47	4	51	126	386·84	727·3	6·38	15·76	48·37	17·66	24·23
6. Thames - - -	4,724	3,160	14	—	14	88	183·30	668·9	2·96	18·63	38·80	14·16	21·17
7. South-eastern - -	7,528	5,503	23	1	24	99	291·82	731·0	3·19	13·15	38·76	14·15	19·36
8. Home - - - -	7,372	5,319	31	2	33	184	383·94	721·5	4·48	24·96	52·08	19·01	26·35
9. Woolwich - - -	5,042	3,487	26	2	28	68	260·12	691·6	5·55	13·48	51·59	18·83	27·23
10. Aldershot - - -	16,084	12,182	55	7	62	288	775·16	757·4	3·86	17·91	48·19	17·59	23·23
11. Channel Isles - -	1,747	1,225	4	1	5	23	56·87	701·2	2·86	13·16	32·55	11·88	16·94
12. Scottish - - -	3,473	2,053	11	—	11	51	92·07	591·1	3·17	14·68	26·51	9·68	16·37
13. Belfast - - -	3,866	2,597	20	1	21	63	137·57	671·7	5·43	16·30	35·58	12·99	19·34
14. Dublin - - -	7,355	6,184	46	4	50	100	375·79	840·8	6·80	13·59	51·09	18·65	22·18
15. Cork - - - -	8,307	4,966	49	6	55	150	250·70	597·8	6·62	15·06	30·18	11·02	18·43
16. Curragh - - -	4,324	2,252	14	1	15	73	145·41	516·2	3·47	16·88	33·63	12·27	23·78
Total - - -	99,795	70,132	415	33	448	1,719	4,167·25	702·8	4·32	16·57	41·76	15·24	21·69
Average of 10 years, 1885 to 1894 - - - -	982,500	757,655	4,810	389	5,199	16,344	43,181·00	771·1	5·20	16·34	43·95	16·04	20·90

* Total deaths and invalids calculated on strength, including men detached.

Amongst districts in the United Kingdom, that showing the highest admission ratio was Dublin with 840·8 per 1,000, the next highest in order being the Eastern, Aldershot, South-eastern, Southern, and Western districts, with ratios of 796·3, 757·4, 731·0, 727·3, and 722·1 per 1,000 respectively. The Curragh district with a ratio of 516·2 per 1,000 stands lowest in the year under report, the next above being the Scottish with 591·1, which was followed by the Cork with 597·8, the North-western with 611·4, and the Thames, Belfast, North-eastern, and Woolwich, with ratios of 668·9, 671·7, 675·4, and 691·6 per 1,000 respectively. Compared with the previous year's ratio the South-eastern, North-eastern, Curragh, and Channel Islands districts alone show decrease; in Woolwich the difference is so small that it may be regarded as similar to the preceding year's ratio, but all the others show increase, some to a very considerable extent. The district showing the highest rate of mortality was the Dublin with 6·80, followed by the Cork, Southern, Woolwich, and Belfast districts with ratios of 6·62, 6·38, 5·55, and 5·43 per 1,000 respectively. The lowest ratios of death were as follows:—North-eastern district 2·16, Channel Islands 2·86, Thames 2·96, and Scottish district 3·17. In 1894 the highest death rate was shown in the Scottish district, and the lowest occurred in the Channel Islands, and in comparison with that year increase is observed in ten of the districts and decrease in the remainder. Invaliding showed the highest ratios in the Eastern, Home, Thames, North-eastern, and Cork districts, with respective ratios of 30·69, 24·96, 18·63, 18·10 and 18·06 per 1,000; the lowest ratio was 10·38, that shown in the North-western district, and other low rates, 13·15, 13·16, 13·48, and 13·59 occurred in the South-eastern, Channel Islands, Woolwich, and Dublin districts. In comparison with the previous year's rates the most marked increase occurred in the Belfast district, one of 8·06, the next being one of 5·72 in the Eastern district. The greatest decrease was in the Channel Islands, 12·37, and the next 6·57 is observed in the South-eastern district. The ratios of constantly sick were highest in the Home, Woolwich, and Dublin districts with 52·08 and 51·59 and 51·09 per 1,000 respectively; the Home district was also highest in the previous year when the rate stood at 54·83. The lowest rates appear in the Scottish district with 26·51, the North-western with 27·27, and the Cork district with 30·18 per 1,000. Eleven of the districts show increase as compared with the ratios of 1894, but in the remainder decrease is observed. *United Kingdom.*

The average sick time to each soldier was, as in the previous year, highest in the Home district with 19·01 days, and, as was also the case in 1894, this was followed by the Woolwich and Dublin districts with 18·83 and 18·65 days respectively; the shortest sick time period was in the Scottish district 9·68, the next being in the North-western, 9·95 days. In making a comparison with the calculations for the previous year it is observed that increase has occurred in ten of the districts, varying from 2·51 days in the Belfast district to ·05 of a day in the North-eastern district. The districts in which decrease occurred were the Curragh, which showed 3·23 days less than in 1894, and the South-eastern, Aldershot, Channel Islands, Scottish and Home districts, which showed decrease in each instance of 2·15, 1·94, 1·75, 1·12 and 1·00 days. The average duration of each case of sickness was longest in Woolwich, where 27·23 days were recorded. The Home district came next with 26·35 days, and the Southern, Curragh, Aldershot, and North-eastern followed with 24·28, 23·78, 23·23, and 22·65 days respectively. In comparison with similar figures in the foregoing year only four of the districts show increase, viz., the North-eastern, Woolwich, Cork, and Southern with 2·39 days, ·97, ·06, and ·01 of a day respectively; and of those showing decrease the following are most noticeable:—Curragh, 4·23, Aldershot, 2·59, Home, 2·33, Scottish, 2·04 and Dublin, 1·60 days.

A table is here given showing the statistics of sickness and mortality among troops quartered in the large camps at Aldershot, Colchester, Shorncliffe, the Curragh, &c., at which the sick are treated locally, as compared with those of

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troops stationed in 38 large towns where the average strength of non-commissioned officers and men was over 500:—

1895.	Average Annual Strength.	Admissions.	Died.	Average constantly Sick.	Ratio per 1,000 of Mean Strength.		
					Admissions.	Deaths.	Constantly Sick.
Camps - -	25,031	18,346	83	1113·27	732·9	3·31	44·48
Towns - -	54,026	40,567	258	2536·38	750·9	4·77	46·99

It will be observed that the ratios of admission, mortality, and constantly sick, of men quartered in camps, were below those of men quartered in towns by 18·0, 1·46, and 2·51 respectively; in the previous year also, the camps showed a decrease in all these comparisons. Comparing these ratios with those for the last year, an increase has occurred in all; in camps the increase in admission, death, and constantly sick rates were 86·2, ·95, and 1·06 per 1,000 respectively, while in towns the increase was 39·9, ·78, and 1·08 in each case.

The following table, compiled from the Returns of Principal Medical Officers, shows the admissions, deaths, number of men invalided, and number constantly sick, from each arm of the service, with the ratios per 1,000 of the strength, and the corresponding ratios for the previous ten years:—

Arms of the Service.	Average Strength.	Admitted into Hospital.	Died.	Discharged as Invalids.	Average Number constantly Sick.	Annual Ratio per 1,000 of Strength.				Average of 10 Years, 1885–94.			
						Admitted.	Died.	Invalided.	Constantly Sick.	Admitted.	Died.	Invalided.	Constantly Sick.
Household Cavalry	1,213	897	5	42	44·05	739·5	4·12	34·62	36·32	649·1	3·78	19·32	33·45
Cavalry - -	9,986	7,205	41	162	437·39	721·5	4·10	16·22	43·80	838·3	4·55	18·36	47·77
Royal Artillery -	16,811	10,579	88	264	666·39	629·3	5·23	15·74	39·64	717·8	6·19	17·28	43·21
Royal Engineers -	4,340	1,702	24	44	98·20	392·2	5·53	10·14	22·63	541·1	5·96	11·14	30·93
Foot Guards -	5,125	3,718	22	117	306·58	725·5	4·29	22·83	59·82	898·4	5·45	23·02	64·98
Infantry - -	44,793	37,637	171	911	2213·58	840·1	3·81	20·32	49·42	852·2	4·51	17·63	48·84
Regimental Depôts	10,459	5,961	61	115	239·64	569·9	5·83	10·99	22·91	678·2	6·99	12·61	28·05
Garrison Staff and Departments.	7,068	2,433	36	65	161·42	344·2	5·09	9·20	22·84	500·7	6·01	9·96	30·10

The highest admission rate in any arm of the service was 840·1 in the Infantry, the next being 739·5 in the Household Cavalry. In the previous year also, the highest was in the Infantry, the next being in the Foot Guards. The lowest rate of admission occurred in the Garrison Staff and Departments, 344·2, the next above, 392·2, in the Royal Engineers. In the foregoing year this order was reversed.

The highest mortality rate was in Regimental Depôts being 5·83, followed by the Royal Engineers with 5·53. In the preceding year the highest rate was also in Regimental Depôts. The lowest rate was in the Infantry, 3·81, followed by the Cavalry with 4·10. In the previous year the Cavalry gave 2·89, and the Infantry 3·23, and in the Household Cavalry 4·86 was the rate of mortality.

Invaliding stood highest in the Household Cavalry, the rate being 34·62, the Foot Guards coming next with 22·83. The Garrison Staff and Depart-

ments furnished the lowest rate, 9·20, the next above, 10·14, being in the Royal Engineers, which is a reversal of the order in the previous year. *United Kingdom.*

The rate of constant inefficiency from sickness stood highest in the Foot Guards, 59·82; the Infantry came next with a rate of 49·42; the lowest rate was in the Royal Engineers 22·63, the next above, 22·84, being in the Garrison Staff and Departments. The highest rates in the foregoing year occurred in the same arms as in that under report, and the Royal Engineers also stood lowest in that year.

Comparing the year under report with 1894, the Household Cavalry shows an increase of admission rate, as also is the case in the Infantry, Royal Engineers, and Royal Artillery, as well as Regimental Depôts and Garrison Staff and Departments, the Cavalry and Foot Guards alone showing a decrease. The mortality rate shows decrease in the Household Cavalry and Foot Guards, but in all other arms an increase has occurred. Invaliding shows increased rates in the Household Cavalry, Royal Engineers, and Foot Guards, other arms showing a decrease.

The constantly sick rate, it will be seen, has increased as compared with the previous year in the case of Household Cavalry, Infantry, Engineers and Artillery, but the remaining arms have decreased in their rates. Comparing all these ratios with the corresponding rates for the previous decennial period, with few exceptions, decrease has occurred.

In Abstract XXIV. will be found a table showing the more important of the health statistics of individual corps serving in the United Kingdom during the year.

The chief statistics of sickness and mortality amongst officers, women, and children, according to the several groups and orders of diseases, are shown in Abstract D., compiled from the Annual Returns of Principal Medical Officers.

OFFICERS.—The average strength as gathered from the annual returns was 4,029, the attacks of illness 1,689, and deaths 19. The ratio of prevalence of sickness was 419·2, and that of mortality 4·71 per 1,000, the former being higher by 124·1, and the latter lower by ·71 per 1,000 than the corresponding rates in the preceding year.

General Diseases.—Diseases dependent on Morbid Poisons.—In the first sub-group of these diseases *eruptive fevers*, principally measles, caused 21 admissions, or 5·2 per 1,000, as compared with 2·0 in the previous year; there were 7 cases of scarlet fever with one death. *Enteric fever* shows 9 attacks and two deaths, being in the ratios of 2·2 and 5·0 per 1,000, as compared with 4·2 and ·49, the corresponding ratios in the preceding year, and with 1·4 and ·34, the similar ratios among warrant officers, non-commissioned officers and men. Of the cases, 2 occurred in Woolwich, cause doubtful, may have been due to contaminated milk supply. Two at Aldershot, one due to defective drainage, but in the other case no cause could be assigned. The remaining cases occurred one at Windsor, Buttevant, Dundalk, Mullingar, and Newry respectively, but the cause of the disease is not stated in either instance. In the case of the two deaths, the disease was contracted, and the deaths occurred, while the officers were on leave of absence. *Other continued fevers* caused 27 attacks of illness, or 6·7 per 1,000, which is below the corresponding ratio in the preceding year. There were two attacks of dysentery, two of diphtheria, and 420 of influenza, one fatal.

Malarial Fevers were the cause of 58 attacks of illness, equal to a ratio of 14·4 per 1,000, which is much above the corresponding ratio in the preceding year. Of the cases 55 are returned as ague, 2 as remittent fever, and 1 as malarial cachexia.

There were 19 cases of *venereal disease* recorded, being at the rate of 4·7 per 1,000, which is fractionally below the rate in the previous year; 15 of the cases were gonorrhœa, only 1 case of secondary syphilis and 3 cases of primary syphilis being recorded.

Under the head of *debility*, 26 cases are returned, equal to 6·5 per 1,000, as compared with 3·7 in the previous year. In the remaining group of general diseases, 79 attacks of illness occurred, 71 of which were due to rheumatic affections. The ratio of prevalence, 17·6 per 1,000, is below that in the

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previous year. There was no attack of rheumatic fever. Two cases of tubercular disease of the lungs are recorded. There were two deaths from carcinoma.

Local Diseases.—Diseases of the Nervous System caused 38 attacks of illness, being in the ratio of 9·4 per 1,000, that in the preceding year having been 6·9. Of the cases 26 were neuralgia in some form, and among the remainder were 4 of megrim, 3 of epilepsy, and one of congestion of the brain. There were 4 cases of mental affections.

Diseases of the Circulatory System show but little sickness, 7 cases only being recorded, 4 being cases of palpitation. Three deaths occurred, 2 from valve disease of heart, and one from aneurysm of aorta.

Diseases of the Respiratory System caused 247 attacks of illness and 3 deaths, being in the ratios of 61·3 and ·74 per 1,000, as compared with 43·9 and ·74 respectively in the preceding year; by far the greater part of the attacks were due to bronchial affections, and among the remainder were 11 cases of pneumonia and 6 of pleurisy. The deaths are returned as pneumonia.

Diseases of the Digestive System were rather more frequent than in the previous year, the ratio of prevalence, 63·0 per 1,000, showing an increase of 16·6. The great majority of the attacks were caused either by affections of the mouth and throat or diarrhœa. Hepatic affections caused 28 attacks of illness, one being a case of abscess of the liver, which proved fatal. There was also one death from enteritis.

Urinary Diseases.—The ratio of prevalence of sickness for diseases of this order was 6·0 per 1,000, in excess of that for the previous year by 1·8. There was one death from Bright's disease.

The remaining orders of local diseases do not call for special mention, and differ but very little in prevalence from the same in the previous year.

Injuries were 268 in number, or 66·5 per 1,000, being more frequent than in the preceding year. Nearly four-fifths of the cases were contusions, wounds, or sprains, and among the remainder were 39 of fracture, 12 of concussion of brain, and 6 of dislocation. Four deaths are returned, three from gunshot wounds (two suicidal, while in a state of temporary insanity, and one the result of a revolver accidentally discharged), and one by drowning, accidental.

WOMEN.—The annual returns give the average strength of women as 11,184, the number of cases of illness, exclusive of cases of ordinary parturition, was 4,043, and the number of deaths 60. The ratio of prevalence of sickness amongst women was, therefore, 361·5, and that of mortality 5·36, the former being lower by 10·0, and the latter higher by ·62, than the corresponding ratios in the preceding year.

General Diseases.—Diseases dependent on Morbid Poisons. The admissions for *eruptive fevers* were 20 in number, equal to 1·8 per 1,000, a decrease of 1·0 as compared with the rate in the previous year. The cases included 9 of scarlet fever and 7 of measles. *Enteric fever* was the cause of 12 attacks and one death, as compared with 5 attacks and no death in the preceding year. Four of the cases occurred at Sunderland, the disease being introduced from the town, where it was prevalent; one at Burnley, probably due to eating oysters; one at Newry, due to insanitary condition of lodgings outside barracks; and there were single cases at Ashton-under-Lyne, Colchester, Dover, Aldershot, Dublin, and Kilkenny (fatal), but the cause of the disease is not stated in either instance. *Other continued fevers* caused 12 attacks of illness, equal to 1·1 per 1,000, which is below the ratio of the preceding year by 1·6. There were 5 cases of *dysentery*, while in the previous year there were 4 cases. The other diseases of this sub-group comprised 383 cases of influenza, 11 of mumps, and 7 of diphtheria, etc.

The attacks of *malarial fever* were 47 in number; of these 45 were returned as ague and 2 as malarial cachexia. The ratio of prevalence of these fevers differs only by a fractional decrease from that in the preceding year. No case of remittent fever occurred.

Under the head of *septic diseases* 17 attacks of illness are shown; of these 10 were cases of erysipelas, and the remaining 7 puerperal septicæmia, 4 of which were fatal. *Venereal Diseases* were represented by 15 cases of secondary and one of primary syphilis, and the next group of diseases by 4 cases of *alcoholism*.

Debility shows a high ratio of sickness, 66·4 per 1,000, but this is below the corresponding ratio in the preceding year. Two deaths are returned as due to debility. *United Kingdom.*

In the succeeding group of diseases *rheumatism* caused a rate of sickness of 15·9 per 1,000, which is slightly below that in the preceding year. Out of 178 cases of rheumatic affections 5 were rheumatic fever; one death is returned as due to rheumatism. *Tubercular diseases* gave 51 cases of illness, of which 50 were instances of lung affection. There were 8 deaths returned as tubercle of the lung. The ratios of prevalence and mortality were 4·6 and ·71 per 1,000, as compared with 4·0 and 1·39 respectively in the preceding year. The remaining cases of sickness in this group of diseases were chiefly due to anæmia, but five cases of malignant new growth are returned, two of which proved fatal.

Local Diseases.—There were 191 attacks of illness recorded under *diseases of the nervous system*, and there were 6 deaths, the ratios per 1,000 being 17·0 and ·54, as compared with 18·7 and ·09 respectively in the preceding year. Neuralgic affections caused 135 of the attacks of illness, and among the remainder were 16 of epilepsy and 5 of mental disease. The deaths were due to inflammation of the brain, 2 cases, apoplexy 2, and cerebral hœmorrhage and epilepsy one case respectively.

Diseases of the Organs of Special Senses, with a ratio of 5·1 per 1,000, were more prevalent than in the previous year. The cases were chiefly conjunctivitis or simple aural affections.

Diseases of the Circulatory System.—Under this head 92 cases are returned, of which 26 were cases of varicose veins, 25 of valvular disease of the heart, 16 of palpitation, and 14 of phlebitis. Seven deaths occurred, 6 from valve disease of heart, and one from phlegmasia dolens.

Diseases of the Respiratory System caused a ratio of sickness equal to 52·1 per 1,000, which is below that in the previous year by 1·8. Out of 583 cases of sickness nearly five-sixths were bronchial affections, and among the remainder there were 36 cases of pleurisy, 25 of pneumonia, 17 of asthma, and 14 of laryngitis. There were 11 deaths, returned as follows: 7 from pneumonia, 2 from pneumonic phthisis, and one each from asthma and pleurisy.

Diseases of the Digestive System.—Under this head 773 cases of illness and 7 deaths are recorded, being in the ratios of 69·1 and ·62 per 1,000, as compared with 75·8 and ·46 respectively in the previous year. The greater part of the sickness from these diseases was due to affections of the mouth and throat, and to dyspepsia; there were also many cases of diarrhœa and colic. Hepatic diseases caused 28 attacks of illness, of which 5 were cases of jaundice; no case of abscess of the liver occurred. There were 3 deaths from peritonitis, 2 from hernia, and one from diarrhœa and atrophy of the liver respectively.

Diseases of the Lymphatic and Glandular System caused a ratio of prevalence of 1·3 per 1,000, 10 being cases of inflammation of the glands, and 4 goitre; and *urinary affections* gave a rate of ·8, chiefly due to cystitis, with 2 deaths from Bright's disease.

Diseases of the Generative System.—The ratio of prevalence of sickness for diseases of this order was 38·9 per 1,000, being lower than the corresponding rate in the preceding year. The mortality rate, ·45 per 1,000, is slightly in excess. The total number of cases treated was 435, and among the various causes of illness were 165 cases dependent on affections connected with pregnancy, 134 cases of functional or symptomatic diseases, etc. There were 5 deaths returned as one each from pelvic cellulitis, hæmorrhage from placenta, metrorrhagia, post partum hæmorrhage, and sudden death after delivery.

In the remaining orders of local diseases there was not much sickness, except from cutaneous affections, but these were of a simple character.

Three cases are returned under the head of *poisons*, all fatal; two were from oxalic acid poisoning, one being suicidal, but in the other case there was no evidence to show whether the drug was self-administered or not, and there was one case of strychnia poisoning, suicidal, whilst of unsound mind.

Injuries.—There were 56 cases of injuries returned, equal to a ratio of 5·0 per 1,000, a decrease from the last year's rate. 49 of the injuries were cases of contusions, wounds, sprains, burns, or scalds, mostly mild in character, and there were 6 cases of fracture, with one death from fracture of the skull,

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CHILDREN.—The average strength as shown in the annual returns was 21,607, the number of attacks of illness 11,315, and there were 460 deaths. The ratio of prevalence of sickness was, therefore, 523·7 per 1,000, which differs from the corresponding ratio in the previous year by an increase of only 9·5. The mortality rate was 21·29 per 1,000 which is higher than in the preceding year by 3·19.

General Diseases.—Diseases dependent on Morbid Poisons.—The number of attacks of *eruptive fever* was 1,971, and there were 48 deaths, being in the ratios of 91·2 and 2·22 per 1,000, as compared with 82·7 and 1·37 respectively in the previous year. There was one case of small-pox which occurred at Chatham, it was mild and recovered. The number of cases of measles alone was 1,469, and of deaths from this cause 37. Scarlet fever caused 211 attacks and there were 11 deaths.

Enteric Fever was the cause of 31 attacks of illness and 2 deaths; in the preceding year there were 11 admissions and no death. Of the cases 12 occurred at Sunderland, the disease being introduced from the town, where it was prevalent; 4 in Dublin, 2 stated to be due to the children eating mussels picked up on the foreshore, but in the other 2 cases the cause of the disease was not traced; 3 at Woolwich, one fatal, probably due to contaminated milk; 2 at Hamilton, cause unknown; 2 at Shoeburyness, attributable to infection in neighbouring village; and there were single cases at Chatham, Aldershot, Regent's Park, Piershill, Pembroke Dock, Cork, London, and Devonport (fatal), in none of which was the cause of the disease stated.

Other continued fevers show a rate of prevalence of 7·3 per 1,000, higher by 2·0 that the corresponding rate in the previous year. 9 attacks of dysentery are returned, in the previous year there were 12 attacks.

Other diseases of this group caused 1,203 attacks and 40 deaths, of these whooping cough caused 378 attacks and 13 deaths. There were 421 cases of influenza, of which 6 died; 315 of mumps, 2 of which proved fatal; and 89 of diphtheria, of which 19 died. 61 of the cases of diphtheria, with 6 deaths occurred at Aldershot where the disease was prevalent; 6, with 4 deaths, at Woolwich; 5, one fatal, at Fermoy; 3, with 2 deaths, at Jersey; 2 at Netley; 2 at Hamilton, one fatal; 2 at the Curragh, with one death; 2 at Buttevant, one fatal; and one case at Chester, Worcester, Colchester, Maidstone, Shoeburyness, and Newbridge respectively, all fatal, except the two last named.

Malarial fevers show 69 attacks of sickness, 57 being cases of ague, 8 malarial cachexia, and 4 remittent fever. *Septic diseases* comprised 2 cases of erysipelas of which one was fatal. In the sub-group of *venereal disease* 25 cases with 6 deaths from congenital or hereditary syphilis are returned, and in the group of *parasitic diseases* 67 cases are shown, chiefly due to intestinal worms.

Under the head of developmental diseases 524 admissions and 54 deaths are recorded, being in the ratios of 24·3 and 2·50 per 1,000, as compared with 24·3 and 3·21 respectively in the previous year. 490 of the cases and 30 of the deaths are returned as debility, the remainder being either cases of immaturity at birth or malformation, with 24 deaths from the former.

In the next group of diseases *rheumatism* shows 44 attacks of illness, or 2·0 per 1,000; of the cases 6 were rheumatic fever. 40 cases are returned under the head of *tubercular diseases*, also 16 deaths. The ratio of prevalence was therefore 1·9, and that of mortality ·74 per 1,000, which are almost identical with those in the previous year. 16 of the cases and 2 of the deaths were due to tubercle of the lung, the remainder to affections of other organs, &c. *Other diseases* of this group caused 117 attacks of illness, due principally to scrofula, anæmia, and rickets; there were 3 deaths, two being due to rickets, and one to scrofula.

Local Diseases.—Diseases of the Nervous System.—Under this head 208 attacks of illness and 78 deaths are recorded, being in the ratios of 9·6 and 3·61 per 1,000, as compared with 10·2 and 2·84 respectively in 1894. Convulsions caused 123 of the attacks of illness, and 59 of the deaths; meningitis caused 26 attacks, and 12 deaths; neuralgia, 17; epilepsy, 10 and 1 death, &c. Among the remaining deaths were 4 from hydrocephalus, and laryngismus stridulus and eclampsia, one each.

Diseases of the Organs of Special Senses gave a ratio of prevalence of 15·6 per 1,000, rather more than in the preceding year. Ophthalmic affections, principally conjunctivitis, were at the rate of 11·3 per 1,000. *United Kingdom.*

Diseases of the Circulatory System were represented by 7 cases of valve disease of heart, 2 cases of palpitation, and one case each of pericarditis (fatal), phlebitis, phlegmasia dolens, and syncope.

Diseases of the Respiratory System caused no less than 3,067 attacks of illness and 138 deaths, but the admission ratio, 141·9 per 1,000, is lower that the corresponding rate in the preceding year, while the death rate, 6·39, is slightly in excess. Most of the sickness was caused by bronchial affections. The deaths were 103 from bronchitis, 31 from pneumonia, and 4 from croup.

Diseases of the Digestive System were the cause of 1,890 attacks of illness, and 61 deaths. The ratio of prevalence of these diseases was 87·5, and that of mortality, 2·82 per 1,000, as compared with 88·0 and 1·42 respectively in the previous year. The principal causes of illness were affections of the mouth and throat, diarrhœa, dyspepsia, and teething. The causes of deaths were: diarrhœa 38 cases, teething 7, enteritis 6, jaundice 2, inflammation of stomach, 2, &c.

To the remaining orders of local diseases but little sickness was due except *diseases of the cutaneous system* which gave a ratio of sickness of 36·2 per 1,000, which is almost identical with the corresponding ratio in the previous year. The diseases of this order causing sickness were very varied, eczema and ringworm being the most frequent ailments.

Under the head of *poisons* was one case of poisoning by iodine which recovered.

Injuries were 451 in number, being at the rate of 20·8 per 1,000, as compared with 23·1 in the previous year. The most frequent injuries were wounds 179 cases, contusions 87, burns or scalds 78, and fractures 49. There were 7 deaths returned as follows:—asphyxia by overlying 4 cases, and burns, wounds, and foreign body in stomach, one case respectively.

Vaccination.

In the subjoined table will be found the conditions as to vaccination of all recruits found on inspection fit for the service, during the year, together with the proportion per 1,000 of each condition:—

1895.	Number of Recruits found on Inspection fit for the Service.	Proportion per 1,000.
Had marks of vaccination - -	32,118	968·9
Had marks of small-pox - -	124	3·7
Had neither marks of vaccination nor of small-pox - - -	908	27·4
Total - -	33,150	1000·0

Compared with the corresponding results in the preceding year, a fractional decrease per 1,000 is observed amongst recruits bearing marks of vaccination, a decrease of 1·1 amongst those bearing marks of small-pox, and an increase of 1·6 amongst those bearing neither marks of vaccination nor small-pox.

The following tables, compiled from the annual returns of Principal Medical Officers, show the number of vaccinations performed during the year, with the proportions per 1,000 of successful or modified results or of failures, whether vaccinated with fresh or preserved lymph.

Results.	Vaccinated during the Year.						Proportion per 1,000.					
	Arm to Arm.		From Preserved Lymph.		Total.		Arm to Arm.		From Preserved Lymph.		Total.	
	Primary Vaccination.	Re-Vaccination.	Primary Vaccination.	Re-Vaccination.	Primary Vaccination.	Re-Vaccination.	Primary Vaccination.	Re-Vaccination.	Primary Vaccination.	Re-Vaccination.	Primary Vaccination.	Re-Vaccination.
TABLE I.—*Recruits.*												
Perfect vaccine pustules	—	180	223	17,949	223	18,129	—	654·5	694·7	621·1	694·7	621·3
Modified vaccine pustules	—	68	47	6,636	47	6,704	—	247·3	146·4	229·6	146·4	229·8
Failures	—	27	51	4,316	51	4,343	—	98·2	158·9	149·3	158·9	148·9
Total	—	275	321	28,901	321	29,176	—	1000·0	1000·0	1000·0	1000·0	1000·0
TABLE II.—*Soldiers other than Recruits.*												
Perfect vaccine pustules	—	—	4	747	4	747	—	—	666·6	279·0	666·6	278·6
Modified vaccine pustules	—	4	1	916	1	920	—	1000·0	166·7	342·2	166·7	343·2
Failures	—	—	1	1,014	1	1,014	—	—	166·7	378·8	166·7	378·2
Total	—	4	6	2,677	6	2,681	—	1000·0	1000·0	1000·0	1000·0	1000·0
TABLE III.—*Soldiers and Recruits.*												
Perfect vaccine pustules	—	180	227	18,696	227	18,876	—	645·1	694·2	592·1	694·2	592·5
Modified vaccine pustules	—	72	48	7,552	48	7,624	—	258·1	146·8	239·1	146·8	239·3
Failures	—	27	52	5,330	52	5,357	—	96·8	159·0	168·8	159·0	168·2
Total	—	279	327	31,578	327	31,857	—	1000·0	1000·0	1000·0	1000·0	1000·0

United Kingdom.

The total number of operations for vaccination during the year was 32,184, a decrease of 3,177 as compared with the number in 1894, which is due to the smaller number of recruits vaccinated. The number of recruits vaccinated was 29,497, which shows a decrease of 3,277, and the number of soldiers other than recruits who were vaccinated was 2,687, an increase of 100 as compared with the preceding year.

The number of recruits found fit for the service during the year was 33,150; therefore, the recruits vaccinated being 29,497, there were 3,653 unaccounted for. This is probably due to the fact that some recruits joined from the Militia, in which force they had already been vaccinated; some joined too late in the year for their vaccination to appear in the yearly returns, and in some cases the men deserted after enlistment before there had been time to vaccinate them.

Taking the vaccinations of recruits shown in Table I., and comparing them with the results in the previous year, it is observed that in arm-to-arm re-vaccination an increase of 60·8 per 1,000 has taken place in the proportion of modified vaccine pustules, and a decrease of 47·9 and 12·9 per 1,000 respectively in perfect vaccine pustules and failures.

In primary vaccination from preserved lymph a decrease of 203·4 per 1,000 has taken place in the proportion of perfect vaccine pustules, and an increase of 82·7 and 120·7 per 1,000 respectively in the proportion of modified vaccine pustules and failures. In re-vaccination a decrease of 87·8 per 1,000 in the proportion of perfect vaccine pustules is counterbalanced by an increase of 18·2 and 69·6 per 1,000 respectively in the proportions of modified vaccine pustules and failures.

In the total results of primary vaccination among recruits a decrease of 199·0 per 1,000 has taken place in the proportion of perfect results, and an increase of 83·9 and 115·1 per 1,000 respectively in the proportion of modified pustules and failures. The total results of re-vaccination as compared with 1894 show an increase of 18·8 per 1,000 and one of 68·7 in the proportion of modified vaccine vesicles and failures respectively, and a decrease of 87·5 per 1,000 in the proportion of perfect vaccine pustules.

Among soldiers other than recruits there were only 4 cases of arm-to-arm re-vaccination. In re-vaccination with preserved lymph a decrease in the proportion of perfect vaccine vesicles is observed, amounting to 188·6 per 1,000; this is counterbalanced by an increase of 60·4 in the proportion of modified results and by one of 128·2 per 1,000 in that of failures. In the total results of re-vaccination a decrease of 189·0 per 1,000 in the proportion of perfect results occurred, and an increase of 60·8 and 128·2 per 1,000 respectively in the proportions of modified results and failures.

Taking all classes of soldiers together the total results of primary vaccination were as follows:—a decrease of 113·3 per 1,000 in the proportion of perfect vaccine pustules, an increase of 2·4 in that of modified pustules, and one of 110·9 per 1,000 in that of failures.

Women.—Three cases of primary vaccination and 257 of re-vaccination are returned. Of the latter the results show that 172 women, or 668·0 per 1,000, were re-vaccinated with perfect results, in 54 cases, or 210·9 per 1,000, with modified results, and with failures in the remainder.

Children.—3,028 children were primarily vaccinated, 2,699 cases being successful and 329 failures, being in the proportions of 891·3 and 108·7 per 1,000 respectively, the proportion of successful cases showing a decrease of 70·3 per 1,000, and that of failures a similar increase as compared with results in the previous year. Out of 47 arm-to-arm primary vaccinations 44, or 936·2 per 1,000, were successful and the remainder failures, and of 2,981 primary vaccinations with preserved lymph 2,655, or 890·6 per 1,000, succeeded, while the remainder failed.

Re-vaccination was performed in 216 cases with successful results in 184, or 851·9 per 1,000, and failures in 32, or 148·1 per 1,000. Out of 215 re-vaccinations with preserved lymph 183, or 851·2 per 1,000, succeeded, while the remainder failed.

The total number of vaccinations performed on children was 3,244, with successful results in 2,883 instances, or in the proportion of 888·7 per 1,000 cases, lower than in the preceding year by 68·3.

United Kingdom.

Small-pox.—During the year, in the United Kingdom, 3 men were attacked with small-pox, and one case occurred among the children, but there was no death due to this cause. In the Colonies one child was attacked, but no death is recorded. In Egypt 5 cases occurred among the men, none being fatal.

In India 19 cases with 2 deaths are recorded amongst the men, 13 admissions with 3 deaths amongst the women, and there were 2 children attacked, one case terminating fatally.

Altogether there were, therefore, 27 cases with 2 deaths among the men, 13 cases with 3 deaths among women, and 4 with 1 death among the children. The ratios of attacks to strength were for men ·13, for women ·81, and for children ·13 per 1,000; the ratio of mortality being ·01, ·19, and ·03 respectively. In the previous year the ratio of prevalence among men was ·13, for women ·32, and for children ·07 per 1,000; the ratio of mortality being ·02 for men and *nil* for women and children.

On the Recruiting of the Army.

It is shown by the Annual Returns of Principal Medical Officers, that the number of recruits inspected during the year was 55,698; of these, 22,916 were rejected as unfit, equal to a ratio per 1,000 of 411·43. The remaining 32,782, or 588·57 per 1,000, were found fit for the service.

The subjoined table shows the number inspected, the number rejected, and the ratios of rejections per 1,000 examined:—

Table I.

Number of Recruits Inspected.	Number Rejected.			Ratio of Rejections per 1,000 inspected.		
	On Inspection.	Unfit within Three Months of Enlistment.	Total.	On Inspection.	Unfit within Three Months of Enlistment.	Total.
55,698	22,548	368	22,916	404·82	6·61	411·43

It will be observed that of the total number found unfit, 368 men, after having passed at first, were found to have become unfit, or not likely to become efficient soldiers, within three months of enlistment.

These recruits were forthwith discharged under the provisions of para. 107 M. (*d.*) Section XIX., Queen's Regulations and Orders for the Army, as all recruits pass through a period of probationary training before being finally accepted. Excluding these the number of men rejected on inspection was 22,548, or 404·82 per 1,000.

Compared with the corresponding ratios of the previous year an increase of 6·26 per 1,000 is seen in the ratio of rejection on inspection, and one of ·66 in that of those rejected after three months. The total ratio of rejection has, therefore, increased by 6·92, the ratio of men found fit having decreased by the same amount.

The native countries of recruits, the ratios of rejection, and the proportion per 1,000 furnished by each country are given in the following table:—

United Kingdom.

TABLE II.

Native Countries of Recruits.	Number Inspected.	Number Rejected.	Ratio Rejected per 1,000 Inspected.	Proportion per 1,000 Recruits furnished by each Country.
England and Wales - - -	43,527	18,326	421·03	782
Scotland - - - - -	4,743	1,824	384·57	85
Ireland - - - - -	6,742	2,532	375·56	121
British Colonies and Foreign Countries - - - - -	686	234	341·11	12
Total - - -	55,698	22,916	411·43	1,000

Compared with the similar table in the report for the previous year, the ratio of rejection of recruits born in England and Wales has increased by 8·96, in that of recruits born in Scotland by 12·82, and in that of those born in the Colonies or Foreign Countries by ·11, but the ratio of rejection of recruits born in Ireland has decreased by 9·66 per 1,000.

Of 1,000 recruits inspected 782 were natives of England and Wales, being the same as in the previous year, 85 were natives of Scotland, being 2 less than in last year, 121 were natives of Ireland, or 2 more than last year, and there were 12 born in the Colonies or Foreign Countries, which is identical with the last year's proportion.

In the succeeding table the number of recruits for each arm of the service is shown as far as possible, also the number rejected, the ratios of rejection, and the proportion per 1,000 for each arm of the service inspected.

As the particular arm is not stated in some of the returns a number of men are shown as enlisted for General Service.

TABLE III.

Arms of the Service.	Number Inspected.	Number Rejected.	Ratio of Rejections per 1,000 of Recruits Inspected for each Arm of the Service.	Proportion for each Arm of the Service per 1,000 Inspected.
Household Cavalry - - -	328	161	490·85	6
Cavalry of the Line - - -	3,237	1,210	373·80	58
Royal Artillery - - -	5,788	2,104	363·51	103
Royal Engineers - - -	1,273	457	358·99	23
Foot Guards - - - -	1,731	642	370·88	31
Infantry Regiments - - -	31,334	12,871	410·77	563
Departmental Corps - - -	858	359	418·41	16
General Service - - -	11,149	5,112	458·52	200
Total - - -	55,698	22,916	411·43	1,000

Compared with corresponding ratios in the preceding year, an increase, 2·67 per 1,000, has taken place in the ratio of rejection for the Infantry, one of 9·77 in that for Departmental Corps, and one of 51·83 in that for General Service; but there is a decrease of 18·24 in the ratio of rejection for the Household Cavalry, one of 10·29 in that for the Cavalry, one of 21·76 in that for the Royal Artillery, one of 42·67 in that for the Royal Engineers, and one of 31·62 in that for the Foot Guards.

The proportion of recruits for each arm of the service per 1,000 inspected, as shown above, when compared with that for the preceding year, shows an

United Kingdom.

increase of 1 in that for the Household Cavalry, one of 11 in that for the Royal Artillery, one of 4 in that for the Royal Engineers, one of 6 in that for the Foot Guards, and one of 2 in that for the Infantry, but a decrease of 4, 10, and 10 respectively is observed in the proportions of recruits enlisting for the Cavalry, Departmental Corps, and General Service.

In Table IV. are shown the occupations of recruits previous to enlistment, the ratio rejected per 1,000 of each group of occupations, and the proportion of each group in every 1,000 men inspected:—

TABLE IV.

Occupations of Recruits.	Number inspected.	Number rejected.	Ratio rejected per 1,000 inspected.	Proportion of each Group in 1,000 Recruits inspected.
1. Labourers, Servants, Husbandmen, &c.	37,795	15,753	416·80	679
2. Manufacturing Artizans (as Clothworkers, Weavers, Lace Makers, &c.).	7,279	3,254	447·04	131
3. Mechanics employed in Occupations favourable to physical development (as Smiths, Carpenters, Masons, &c.).	5,217	2,035	390·07	94
4. Shopmen and Clerks - -	3,202	1,416	442·22	57
5. Professional Occupations, Students, &c.	585	199	340·17	10
6. Boys - - - - -	1,620	259	159·88	29
Total - - -	55,698	22,916	411·43	1,000

Compared with the corresponding return in the report for the preceding year, it will be observed that there is an increase of 6·38 per 1,000 in the ratio of rejection in Class I., labourers, &c.; one of 15·22 in Class II., manufacturing artizans; one of 4·05 in Class III., mechanics; one of 17·39 in Class IV., shopmen and clerks; and one of 18·21 in boys; but there is a decrease of 50·62 in the ratio of rejection in Class V., professional occupations.

The proportion of the different classes of occupations among 1,000 recruits examined, compared with those for the preceding year, shows an increase of 28 in Class I., labourers, &c., and one of 2 in Class VI., boys; but there is a decrease of 16 in the proportion of Class II., manufacturing artizans; one of 5 in Class III., mechanics; one of 7 in Class IV., shopmen and clerks; and one of 2 in Class V., professional occupations.

The following table gives the number of recruits rejected on inspection during the year according to the different causes of rejection arranged in classes, and the ratio per 1,000 of rejection in each class. Similar information is given regarding recruits unfit within three months of enlistment:—

TABLE V.

Causes of Rejections in Classes.	Total inspected, 55,698.			
	Number rejected on Inspection.	Ratio per 1,000 rejected on Inspection.	Unfit within Three Months of Enlistment.	Ratio per 1,000 rejected as Unfit within Three Months of Enlistment.
1. Syphilis - - - -	194	3·48	—	—
2. Scrofula - - - -	143	2·56	1	·02
3. Tubercle - - - -	35	·63	12	·22
4. Impaired Constitution and Debility.	199	3·57	28	·50
5. Other General Diseases - -	221	3·96	8	·14
6. Diseases of Nervous System -	40	·72	25	·45

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Causes of Rejections in Classes.	Total inspected, 55,698.			
	Number rejected on Inspection.	Ratio per 1,000 rejected on Inspection.	Unfit within Three Months of Enlistment.	Ratio per 1,000 rejected as Unfit within Three Months of Enlistment.
7. Weakness of Intellect	86	1·54	50	·90
8. Defective Vision	2,222	39·88	1	·02
9. Diseases of Eyes and Eyelids	89	1·60	7	·12
10. Diseases of Nose and Mouth	25	·45	2	·04
11. Disease of Ears	130	2·33	11	·20
12. Deafness	89	1·60	9	·16
13. Impediment of Speech	102	1·83	—	—
14. Disease of Heart	1,154	20·71	40	·72
15. Disease of Arteries (Aneurysm)	1	·02	—	—
16. Disease of Veins (Varix)	883	15·85	8	·14
17. Disease of Lungs (except Tubercle).	50	·90	3	·05
18. Loss or Decay of many Teeth	1,000	17·95	4	·07
19. Hernia	372	6·68	25	·45
20. Laxity of Abdominal Rings	94	1·69	—	—
21. Hæmorrhoids	77	1·38	—	—
22. Diseases of the Urinary Organs	37	·66	6	·11
23. Varicocele	681	12·28	6	·11
24. Other Diseases of the Genital Organs (not Syphilitic).	99	1·78	1	·02
25. Defects of Upper Extremities, from Fracture, Contraction, Luxation, &c.	288	5·17	5	·09
26. Defects of Lower Extremities, from Fracture, Contraction, Luxation, &c.	1,012	18·16	18	·32
27. Flat Feet	733	13·16	38	·68
28. Diseases of Joints	199	3·57	4	·07
29. Other Affections of Bones and Muscles.	130	2·33	6	·11
30. Ulcers, Wounds, and Cicatrices	104	1·87	3	·05
31. Other Affections of the Cutaneous System.	211	3·79	5	·09
32. Malformation of Ears	2	·03	—	—
33. Malformation of Nose and Mouth	12	·22	—	—
34. Malformation of Chest and Spine	364	6·53	5	·09
35. Malformation of Urinary or Genital Organs.	13	·23	—	—
36. Under Height	1,600	28·72	1	·02
37. Under Chest Measurement	7,038	126·38	30	·54
38. Under Weight	2,037	36·58	2	·04
39. Apparent Age not in accordance with Regulations.	354	6·35	—	—
40. Not likely to become efficient	397	7·13	4	·07
41. Over height	31	·55	—	—
Total rejected	22,548	404·82	368	6·61

ted ydom.

It will be seen that a considerable number of the rejections on inspection were caused by defective development, the ratio of rejection on this account only being as much as 191·68 per 1,000, which, compared with the corresponding ratio for the preceding year, shows an increase of 13·13. The highest ratio of rejection, 126·38 per 1,000, was on account of defective chest measurement; this ratio is higher by 16·11 than that recorded in the previous year. The ratio of rejection for being under weight was 36·58 per 1,000, a decrease of 3·03, and the ratio of rejection for being under height was 28·72 per 1,000, a fractional increase as compared with the last year's return. Among other causes of rejection the most frequent was, as usual, defective vision, the ratio being 39·88 per 1,000, which is lower than in the previous year by 3·02. Cardiac disease, with a ratio of 20·71 per 1,000, was the cause of rejection next in frequency, followed by defects of the lower extremities 18·16, loss or decay of many teeth 17·95, varicose veins 15·85, flat feet 13·16, and varicocele 12·28. In previous years the returns show that these causes of rejection were generally the most frequent, though the ratios, as well as the order in which they come, may vary. Among those recruits found unfit within three months after enlistment, the chief causes of rejection were weakness of intellect 50 cases, heart disease 40, flat feet 38, and under chest measurement 30; these were also the most frequent causes of rejection in the previous year.

Ages, Heights, Weights, and Chest Measurements of all Recruits finally approved for Service during the Year.

In the following table are shown the ages of all recruits finally approved for service, and the proportion of each age per 10,000:—

TABLE VI.

Ages.	Numbers finally approved for Service.	Proportion per 10,000.
Boys under 17 years - - - -	1,367	417
From 17 to 18 „ - - - -	304	93
„ 18 to 19 „ - - - -	13,733	4,189
„ 19 to 20 „ - - - -	6,733	2,054
„ 20 to 21 „ - - - -	3,546	1,082
„ 21 to 22 „ - - - -	2,683	818
„ 22 to 23 „ - - - -	1,841	561
„ 23 to 24 „ - - - -	1,301	397
„ 24 to 25 „ - - - -	1,038	317
25 years and upwards - - -	236	72
Total - - -	32,782	10,000

The age at which the greatest number of recruits passed fit for service was between 18 and 19 years, the actual number being 13,733, which is in the proportion of 4,189, or nearly half of every 10,000 approved; in the preceding year this proportion was 4,229. The next proportion, 2,054, between 19 and 20 years of age, is below the corresponding proportion in the previous year.

The next table gives the heights of recruits finally approved, and the proportion of each height per 10,000. It also gives the heights of recruits

finally approved, arranged in series according to age, together with the proportion per 10,000 of each height at each age :— *United Kingdom.*

TABLE VII.

Heights of Recruits finally approved for Service.	Boys under 17 Years.	Between 17 and 18.	Between 18 and 19.	Between 19 and 20.	Between 20 and 21.	Between 21 and 22.	Between 22 and 23.	Between 23 and 24.	Between 24 and 25.	25 Years and upwards.	Total at each Height.
ft. in. ft. in.											
Under 5 3 -	1,131	11	18	4	2	1	—	—	2	1	1,170
5 3 to 5 4 -	88	45	1,207	432	95	66	51	33	17	8	2,042
5 4 to 5 5 -	51	98	3,633	1,319	588	424	232	146	108	24	6,623
5 5 to 5 6 -	33	74	3,480	1,300	741	542	352	222	172	21	6,937
5 6 to 5 7 -	28	37	2,067	1,191	637	466	343	242	192	42	5,245
5 7 to 5 8 -	20	18	1,427	999	546	352	325	219	186	52	4,174
5 8 to 5 9 -	13	13	939	674	389	317	251	169	142	42	2,949
5 9 to 5 10 -	2	4	532	435	265	247	156	141	104	15	1,901
5 10 to 5 11 -	1	2	253	206	149	128	80	73	54	18	964
5 11 to 6 0 -	—	1	129	99	87	74	30	35	37	8	500
6 0 and upwards	—	1	48	74	47	36	21	21	24	5	277
Totals at each age	1,367	304	13,733	6,733	3,546	2,683	1,841	1,301	1,038	236	32,782

Heights of Recruits finally approved for Service.	Proportions per 10,000 at each Age.										Total Proportion of each Height per 10,000.
	Boys under 17 Years.	Between 17 and 18.	Between 18 and 19.	Between 19 and 20.	Between 20 and 21.	Between 21 and 22.	Between 22 and 23.	Between 23 and 24.	Between 24 and 25.	25 Years and upwards.	
ft. in. ft. in.											
Under 5 3 -	8,274	362	13	6	6	3	—	—	19	42	357
5 3 to 5 4 -	644	1,480	879	641	268	246	277	254	164	339	623
5 4 to 5 5 -	373	3,224	2,646	1,959	1,658	1,580	1,260	1,122	1,041	1,017	2,020
5 5 to 5 6 -	241	2,434	2,534	1,931	2,090	2,020	1,912	1,706	1,657	890	2,116
5 6 to 5 7 -	205	1,217	1,505	1,769	1,796	1,739	1,863	1,860	1,850	1,780	1,600
5 7 to 5 8 -	146	592	1,039	1,483	1,540	1,424	1,766	1,683	1,792	2,203	1,275
5 8 to 5 9 -	95	428	684	1,001	1,097	1,181	1,363	1,299	1,368	1,780	899
5 9 to 5 10 -	15	131	387	646	747	920	847	1,084	1,002	635	580
5 10 to 5 11 -	7	66	184	306	420	477	435	561	520	763	294
5 11 to 6 0 -	—	33	94	148	245	276	163	269	356	339	152
6 0 and upwards	—	33	35	110	133	134	114	162	231	212	84
Total -	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000

Compared with the corresponding return for the preceding year it is observed that the proportion of recruits under 5 feet 3 inches in height per 10,000 approved has increased by 21, that of recruits between 5 feet 7 inches, and 5 feet 8 inches by 48, that of recruits between 5 feet 8 inches and 5 feet 9 inches by 63, that of recruits between 5 feet 9 inches and 5 feet 10 inches by 21, that of recruits between 5 feet 10 inches and 5 feet 11 inches by 17, that of recruits between 5 feet 11 inches and 6 feet by 27, and that of recruits over 6 feet in height by 8; but a decrease of 130 is ob[illegible]

United Kingdom.

in the proportion of recruits between 5 feet 3 inches and 5 feet 4 inches; one of 45 in that of recruits between 5 feet 4 inches and 5 feet 5 inches, one of 25 in that of recruits between 5 feet 5 inches and 5 feet 6 inches, and one of 5 in that of recruits between 5 feet 6 inches and 5 feet 7 inches.

Omitting boys, the highest proportion of recruits at any age of any height per 10,000 finally approved was 3,224 between 17 and 18 years of age and of 5 feet 4 inches to 5 feet 5 inches in height. In the previous year the highest proportion was of the same age and height. Taking the age at which the great majority of the recruits are passed, from 18 to 19 years, the highest proportions were 2,646 between 5 feet 4 inches and 5 feet 5 inches in height, and 2,534 between 5 feet 5 inches and 5 feet 6 inches in height; in the preceding year also the highest proportions at the same age were at the same heights, viz., 2,550 between 5 feet 4 inches and 5 feet 5 inches, and 2,534 between 5 feet 5 inches and 5 feet 6 inches.

The next table shows the weights of the recruits who were finally approved, and the proportion of each weight per 10,000. It also shows the weights of these recruits arranged in series according to age, together with the proportion per 10,000 of each weight at each age :—

TABLE VIII.

Weights of Recruits finally approved for Service.	Boys under 17 Years.	Between 17 and 18.	Between 18 and 19.	Between 19 and 20.	Between 20 and 21.	Between 21 and 22.	Between 22 and 23.	Between 23 and 24.	Between 24 and 25.	25 Years and upwards.	Total at each Weight.
Under 100 lbs. -	1,065	3	2	1	—	—	—	—	—	—	1,071
100—110 lbs. -	202	23	52	—	4	—	—	—	—	—	281
110—120 „ -	70	134	3,974	1,233	441	232	157	95	32	13	6,381
120—130 „ -	27	100	5,777	2,370	1,073	777	464	279	204	38	11,109
130—140 „ -	2	37	2,715	2,067	1,080	834	552	372	306	61	8,026
140—150 „ -	1	4	952	771	615	491	394	294	245	64	3,831
150—160 „ -	—	2	215	221	217	235	190	159	154	39	1,432
160—170 „ -	—	—	40	58	92	80	57	79	75	11	492
Upwards of 170 lbs.	—	1	6	12	24	34	27	23	22	10	159
Totals at each age	1,367	304	13,733	6,733	3,546	2,683	1,841	1,301	1,038	236	32,782

Weights of Recruits finally approved for Service.	Proportions per 10,000 at each Age.										Total Proportion of each Weight per 10,000.
	Boys under 17 Years.	Between 17 and 18.	Between 18 and 19.	Between 19 and 20.	Between 20 and 21.	Between 21 and 22.	Between 22 and 23.	Between 23 and 24.	Between 24 and 25.	25 Years and upwards.	
Under 100 lbs. -	7,791	99	1	2	—	—	—	—	—	—	327
100—110 lbs. -	1,478	757	38	—	11	—	—	—	—	—	86
110—120 „ -	512	4,408	2,894	1,831	1,244	865	853	731	308	551	1,947
120—130 „ -	197	3,289	4,207	3,520	3,026	2,896	2,520	2,145	1,965	1,610	3,389
130—140 „ -	15	1,217	1,977	3,070	3,046	3,108	2,998	2,859	2,948	2,585	2,448
140—150 „ -	7	131	693	1,145	1,734	1,830	2,140	2,259	2,360	2,712	1,168
150—160 „ -	—	66	157	328	612	876	1,032	1,222	1,484	1,652	437
160—170 „ -	—	—	29	86	259	298	310	607	723	466	150
Upwards of 170 lbs.	—	33	4	18	68	127	147	177	212	424	48
Totals at each age	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000

United Kingdom.

Compared with the return in the previous year an increase of 27 has occurred in the proportion of recruits under 100 lbs. in weight per 10,000 finally approved, one of 14 in that of recruits between 100 and 110 lbs. in weight, one of 29 in that of recruits between 130 and 140 lbs. in weight, one of 36 in that of recruits between 140 and 150 lbs. in weight, one of 14 in that of recruits between 150 and 160 lbs. in weight, one of 4 in that of recruits between 160 and 170 lbs. in weight, and one of 2 in that of recruits over 170 lbs. in weight. The proportion of recruits between 110 and 120 lbs. in weight has decreased by 76, and that of recruits between 120 and 130 lbs. in weight by 50. Omitting boys, the highest proportion of recruits at any age and of any weight was 4,408 among recruits between 17 and 18 years of age, and between 110 and 120 lbs. in weight; the number of recruits examined at this age was not great, but taking the next age, between 18 and 19 years, at which a large number of recruits were examined, the highest proportion was 4,207 among recruits between 120 and 130 lbs. in weight. In the preceding year the relative position of these two proportions was reversed.

In the next table is shown the chest measurements of recruits finally approved and the proportion of each measurement per 10,000. It also shows the chest measurements of these recruits arranged in series according to age, together with the proportion per 10,000 of each chest measurement at each age.

TABLE IX.

Chest Measurement of Recruits finally approved for Service.	Boys under 17 Years.	Between 17 and 18.	Between 18 and 19.	Between 19 and 20.	Between 20 and 21.	Between 21 and 22.	Between 22 and 23.	Between 23 and 24.	Between 24 and 25.	25 Years and upwards.	Total at each Chest Measurement.
Under 31 inches -	1,167	10	1	—	1	—	—	—	—	—	1,179
31—32 inches -	129	21	39	15	2	1	2	—	—	1	210
32—33 „ -	44	93	2,180	506	158	77	39	23	7	4	3,191
33—34 „ -	19	120	5,705	2,333	947	635	317	204	144	21	10,535
34—35 „ -	8	51	4,130	2,304	1,310	996	692	425	321	71	10,268
Above 35 inches -	—	9	1,588	1,455	1,128	974	791	649	566	139	7,299
Totals at each age	1,367	304	13,733	6,733	3,546	2,683	1,841	1,301	1,038	236	32,782

Chest Measurement of Recruits finally approved for Service.	Proportions per 10,000 at each Age.										Total proportion of each Chest Measurement per 10,000.
	Boys under 17 Years.	Between 17 and 18.	Between 18 and 19.	Between 19 and 20.	Between 20 and 21.	Between 21 and 22.	Between 22 and 23.	Between 23 and 24.	Between 24 and 25.	25 Years and upwards.	
Under 31 inches -	8,537	329	1	—	3	—	—	—	—	—	360
31—32 inches -	944	691	28	22	6	4	11	—	—	42	64
32—33 „ -	322	3,059	1,588	841	445	287	212	177	67	169	973
33—34 -	139	3,947	4,220	3,465	2,671	2,367	1,722	1,568	1,387	890	3,214
34—35 „ -	58	1,678	3,007	3,511	3,694	3,712	3,759	3,267	3,093	3,009	3,163
Above 35 inches -	—	296	1,156	2,161	3,181	3,630	4,296	4,988	5,453	5,890	2,226
Total -	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000

United Kingdom.

Compared with the return for the preceding year an increase of 32 has occurred in the proportion of recruits under 31 inches chest measurement per 10,000 finally approved, one of 87 in that of recruits between 33 and 34 inches chest measurement, one of 110 in that of recruits between 34 and 35 inches chest measurement, and one of 15 in that of recruits over 35 inches chest measurement, but a decrease of 32 is observed in the proportion of recruits between 31 and 32 inches chest measurement, and one of 212 in that of recruits between 32 and 33 inches chest measurement. Omitting boys, the highest proportion of recruits at any age and of any chest measurement was 5,890 among men of 25 years and upwards, and above 35 inches chest measurement. In the previous year, also, the highest proportion was found at these ages; they are, however, dependent on comparatively few approvals. Taking the ages at which the greatest number of recruits are examined, 18 to 19 years, it is found that the highest proportion was 4,220 among recruits from 33 to 34 inches chest measurement, as compared with 3,961 at the same age and chest measurement in the previous year.

From these tables it has been calculated that, excluding boys under 17 years of age, the average age of recruits finally approved during the year was, as in 1894, 19·4 years, the average height, 5 feet 5·9 inches, as compared with 5 feet 5·8 inches in the year before, and the average weight, 125·2 lbs., as compared with 124·9 lbs. the corresponding weight in the previous year.

The next table shows the state of education of recruits finally approved, together with the proportion per 1,000 of those well educated, able to read and write, able to read only, or unable to read.

TABLE X.

	Numbers finally approved.	Proportion per 1,000.
Well educated	2,055	63
Able to read and write	29,566	902
Able to read only	404	12
Unable to read	757	23
Total	32,782	1,000

Compared with the results for the preceding year an increase of 1 has occurred in the proportion of recruits well educated, and one of 3 in that of recruits able to read and write, but there is a decrease of 2 respectively in the proportion of recruits returned as able to read only, and unable to read.

HOME STATIONS.

United Kingdom.

Sanitary Conditions.

North-eastern District.

The Principal Medical Officer, Surgeon-Colonel W. D. Wilson, M.B., states that the general health of the troops was good, and the sanitary condition of the several barracks throughout the district was, on the whole, satisfactory. At Beverley the sanitary arrangements were generally good, but it was discovered in the course of the year that the gradients of the drains at the south-east corner of the barrack square were insufficient, and the drains not large enough, or properly laid; the provision of an additional flushing tank has been suggested to remedy this evil. At Bradford the hospital is reported on as an old dilapidated building, and very difficult to keep in order. The drainage of a large part is being laid down anew. At Leeds a separate building for the treatment of infectious cases, and a fumigating chamber, are considered necessary. At Leicester the surface drains have been improved, and the whole system is now stated to be satisfactory. The condition of the hospital sergeant's quarters is reported to be far from good, and representations were made with a view to immediate steps being taken to remedy the defects. Owing to a subsidence of the front of the hospital it was found necessary to rebuild the porch at the entrance. The medical officer at Lincoln states that the ventilation of the barracks rooms is possibly excessive, owing to the large number of windows, in addition to the automatic ventilators. The water-supply is ample but the quality is doubtful, which necessitates filtration before use for drinking purposes. The surface drainage at Pontefract is reported to be unsatisfactory, the whole of the barrack compound requires proper forming and grading, as in wet weather there is a general lodgment of water all over the place. The urinals are stated to be of the old pattern and require constant supervision to maintain them in a good sanitary condition. The quality of the water supply was found to be indifferent, and it was recommended that the town water, which is of good quality, should be supplied for drinking purposes. At Sheffield the drainage has been good, except that surface drains in a few places require relaying, and the sewage drains are old and should be renewed when funds are available. The latrines also require ventilating skylights, as they are very dark inside. Better ablution arrangements are needed for the troops, such as bathing-place for summer and warm bath accommodation during winter. At Tynemouth during the year some new married quarters were erected in the Castle, and the main drains were inspected and satisfactorily laid. At York the bathing accommodation at the Cavalry Barracks is stated to be unsatisfactory, the rooms are dark and cold, inconveniently situated, and have no hot water laid on, so consequently they are little used in winter. The married quarters of these barracks are of the old pattern, and are not suitable to the requirements of a married family. A block of warrant officers' quarters of the most modern type has been added to the Infantry Barracks. The accommodation for married families is good, but not sufficient.

North-western District.

The Principal Medical Officer, Surgeon-Colonel J. H. Hughes, M.D., reports that the health of the troops was not so good as it was in the preceding year; the great severity of the winter at the beginning of the year was no doubt, much to blame for this increase in the sickness. At Ashton-under-Lyne the drainage throughout the barracks was entirely renewed, and the dry-earth system of conservancy converted to the water system. The infants' school is stated to be too small, and some of the old married quarters have no sculleries. At Birmingham the new system of drainage was completed. It

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is stated that suitable quarters close to the hospital are much needed for the wardmaster, and that his present room should be utilized by the men of the Medical Staff Corps, who now have to live in a barrack room some distance from their wards. The barracks at Burnley are reported to be very old, unsuitable, and generally in bad repair. At Bury the barracks are also old, but in fair sanitary condition. The floor in the ablution room was relaid during the year, and the drain removed outside. At Chester various improvements were made in drains and gully traps at Government House and Militia Barracks. It is stated that an isolation ward is much required. The medical officer in charge at the last training at Chipping Camp recommends a hut for hospital purposes, instead of tents, and covered lavatories for troops. At Lichfield improved pattern waterclosets have been provided in the officers' quarters, the drainge to part of the married quarters has been remodelled, and in two ablution rooms new pattern benches have been provided. At Seaforth the only complaint was the insufficiency of the accommodation for the examination of recruits. The hospital at Salford is very old and inadequate, it has no infectious ward, prisoners' ward, or pack store. At Preston the ventilation of the cells was improved, and a new foul bedding store constructed. Various improvements in drainage and gully traps have been made at Warrington, and new married quarters, with their accessories, constructed. At Warwick improved gully traps have been provided for the married quarters, and floors of latrines concreted. At Worcester the water has been laid on direct from the town main. There has been a concensus of opinion among the medical officers that gymnastic training has had a most beneficial effect on the health and physique of the troops.

Eastern District.

The Principal Medical Officer, Surgeon-Colonel J. Maturin reports that the health of the troops in the district during the year was good, and the sanitary condition of the several stations satisfactory. No disease was shown to be due to insanitary defects in barracks. At Colchester the new hospital and infantry barracks are approaching completion, when they will take the place of the old and unsatisfactory huts. At Landguard Fort the old drains and sinks have been removed, and new ones of a better and more modern construction provided. Flushing tanks have been placed at head of main drain, and disconnecting pits, ventilators, and man-holes provided. The sewer outlet on the foreshore has been re-constructed to prevent it being blocked with shingle. At the standing musketry camp a permanent ablution room has been provided, also a drying and cooking shelter, and the water supply to latrines and camp has been increased. At Harwich the drainage of the officers' quarters has been improved. The guard room latrine at Ipswich has been improved by the substitution of Jenning's apparatus for the old pattern one; the ventilators in some of the barrack blocks have also been renewed. At Weedon new filtering materials to the sewage tank were provided. The drainage system at Northampton has been improved. The gymnasia at Colchester, Warley, and Bury St. Edmund's continue to exercise a beneficial effect upon the health of the troops using them.

Western District.

The Principal Medical Officer, Surgeon-Major-General J. B. Hamilton, M.D., states that the general sanitary condition of the barracks and hospitals in the district was on the whole good, and no disease has been attributable to sanitary defects. At Bodmin the sanitary condition of the barracks was excellent, the drainage being in good order and the water supply plentiful. At Brecon the barracks have been kept in a clean condition both within and without, and the system of drainage is reported to be very satisfactory. The accommodation for married soldiers, however, is stated to be insufficient for requirements. At Bristol no material change of any kind was made in the barracks during the year, but ventilating shafts were placed along the line of

drainage outside the barracks, which have proved very satisfactory. At Cardiff the barracks are satisfactorily situated, and no defects in ventilation, drainage, or water supply were discovered. At Devonport the Millbay Barracks are very old and dilapidated, and it is hoped that they will be vacated at on early date. The drainage and sewerage of the Raglan Barracks are reported as being in an unsatisfactory condition. The new Crown Hill Barracks are approaching completion, and will probably be occupied within a year. The wing of the Station Hospital that was burnt down three years ago is now being rebuilt. At Exeter the barracks and married quarters are well situated and in a satisfactory sanitary condition, but the accommodation afforded by the hospital was not found sufficient for the number of sick. At Newport the barracks gave ample accommodation, and the sanitary arrangements were satisfactory. At Pembroke Dock the old wooden huts are in many cases dilapidated, and in frequent want of repairs. The ventilation of the barracks is satisfactory, but that of the garrison cells not entirely so. The married quarters are small, and the accommodation very poor. The general position of the hospital is stated to be bad, and the old wooden huts are structurally unsuitable, and their general arrangements defective for a hospital. At Taunton the sanitary condition of the barracks was excellent. Increased accommodation was made to the sergeants' mess, and to the sergeant-major's quarters. *United Kingdom.*

Southern District.

The Principal Medical Officer, Surgeon-Major-General E. C. Markey, C.B., reports that the general health of the troops quartered in the district during the year was good, but compared rather unfavourably with that in the preceding year. At Christchurch the drinking water is thought to be liable to pollution, and negotiations were proceeding for obtaining water for the troops from another and purer source. At Devizes the drainage system and sewage tanks were repaired and improved. At Dorchester sanitation was well attended to. The ground floor bed-rooms of the married quarters were concreted, and additional ventilation provided. At Gosport the drainage of the hospital was improved, additional latrine accommodation provided at Fort Monckton, drain from latrine at Fort Rowner re-constructed, and baths provided in ablution room at Fort Elson. It is stated that great difficuly was experienced in the keeping the wards of the hospital at an equable temperature in cold weather, but improvements are now being effected. The barrack rooms at Hilsea are good and well ventilated. The waterclosets at the hospital have been fitted with new flush-out apparatus. The building used as a hospital at Golden Hill Fort is reported on as unsuitable, and nothing short of a new building outside appears to be a satisfactory remedy. At Parkhurst the water supply is obtained from wells sunk in chalk; as it is liable to contamination all drinking water is boiled before used. The main drainage of the Western Forts, Isle of Wight, was improved, and out-fall extended. At Sandown the general sanitary condition is reported to have been on the whole satisfactory. At Portland the want of a special ward at the hospital for the treatment of contagious diseases is said to be much felt. New latrine and urinal have been provided for the guard room. The quality of the drinking water is reported as fairly satisfactory, but the supply is precarious, being liable to run short. The sanitary conditions of the different barracks at Portsmouth are generally satisfactorily reported on. At the Cambridge Barracks additional bath accommodation is required. The conditions of supply of drinking water to the troops are not as satisfactory as could be wished; means for improving them are under consideration. The new married quarters, Clarence Barracks, were opened during the year, and the drainage of the Canteen, Victoria Barracks, improved. The sanitary condition of the barracks and hospital at Trowbridge is stated to be good. At Weymouth the canteen is reported to be too small for the number of troops at the station. At Winchester the old hospital was appropriated as a barrack after the fire; there were no insanitary defects.

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Netley.

The Principal Medical Officer, Surgeon-Major-General C. H. Giraud, reports that the sanitary arrangements of the Royal Victoria Hospital were satisfactory. The kitchens were kept in good order, and the cooking was satisfactory. The warming of the hospital has been improved by laying on hot water to the surgical division. The ventilation is fairly satisfactory, and steps were being taken to further improve it. The Hermite process of sewage disinfection is being introduced into the whole establishment, and a better class of waterclosets have been introduced into many of the wards. The walls of some of the wards have been painted and distempered, and the parian cement removed, with great advantage. Some of the flooring has been re-laid in teak, and a probable cause of erysipelas from defective flooring removed. An isolation quarter has been established, to which families infected with infectious disease can be removed, while their own quarters are being disinfected. A new steam disinfecting apparatus has been installed, and will very soon be taken into use. The sanitation, &c., of the lunatic hospital is reported to be in good order.

Thames District.

The Senior Medical Officer, Brigade-Surgeon-Lieutenant-Colonel J. Williamson, M.B., reports that the health of the troops was good during the year, although a considerable increase occurred in the admissions for sore throat and disease of the respiratory system, due, to a large extent, to the changeable weather experienced. The sanitary condition of the barracks at Chatham was generally well attended to, but the ventilation in some of them is hardly satisfactory. Several sanitary services were performed during the year; a sewer drain which ran beneath one of the cook-houses in the Chatham barracks was removed; the windows of the casemate rooms in St. Mary's barracks were enlarged in order to increase the ventilation; and the drainage of the married quarters at Chattenden barracks remodelled. New ablution rooms are required in Brompton and Lower Chatham barracks, as those now in use are badly situated and damp. The barrack room of the Medical Staff Corps at Fort Pitt was condemned as unfit for occupation, and the men temporarily housed in one of the hospital wards, pending the erection of a new building. The floors of the married quarters at Fort Tilbury, Gravesend, referred to in last report as being damp, have been relaid in concrete and bitumen. At Maidstone all the latrines in barracks and hospital were improved by substituting Jenning's patent for the old stone ware pan. The sanitary arrangements of the vicinity of Sheerness were somewhat defective, but the barracks are kept in good condition. Sculleries have been added to the married quarters, and a washhouse provided for the hospital, together with improved watercloset accommodation. At Shoeburyness several improvements were made in the drainage, that of the hospital was taken up and re-arranged, and increased ventilation has been provided in the barrack rooms. The huts used as married quarters are reported to be in a very unsatisfactory condition, they are dilapidated, and in some instances barely weather proof; two of the quarters have been improved by laying down a composition of tar and ashes under the floor. The sanitation of Shoeburyness and the surrounding villages was in a very bad state, but active measures were being taken by the Urban Council to remedy the defects.

South-eastern District.

The Acting Principal Medical Officer, Brigade-Surgeon-Lieut.-Colonel J. F. Supple, reports that the health of the troops was very satisfactory during the year. The sanitary arrangements throughout the district were of a very satisfactory nature and no sickness was traced to any defects. At Brighton the barracks are reported to have been kept in a good sanitary condition, but it is stated that they are very old, and badly situated, being fully exposed to the east and north-east winds which blow so keenly during the winter and spring. At Canterbury during the year the ventilation of several of the barrack rooms was improved, and the drainage of the Cavalry Barracks reconstructed. At Dover Castle the ventilation of some of the old casemates is reported to be faulty, and their lighting is necessarily bad. It is stated that the only remedy for this is to discontinue the use of these casemates, and build new stone huts. Many sanitary improvements were made during the year. The drainage of the hospital at Eastbourne was overhauled and now is reported to be in a satisfactory condition. At Lydd the sanitary state of the barracks, &c. was satisfactory, and there was no overcrowding. During the year permanent urinals were built, connected with the main drain. At Shorncliffe there has been no overcrowding or defective ventilation. The drainage in camp was satisfactory, and that of the hospital was being re-constructed, in connection with the new buildings. Water supply good and sufficient. Cleanliness was duly observed in all instances.

Home District.

The Principal Medical Officer, Surgeon-Colonel T. O'Farrell, M.B., shows in his annual report that there was an increase in the admission rate as compared with that for the previous year. At Caterham, increased hospital accommodation is stated to be much required; a barrack room had frequently to be set apart to provide accommodation for the sick. The position of the barracks at Kingston-on-Thames, in a low part of the Thames Valley, renders drainage a very difficult matter; the level above the river being so low, a small rise blocks it, and the insufficient fall makes the sewers in very dry seasons more or less choked, as they are not very well flushed. At Oxford it is thought to be very desirable that the hospital hut should be furnished with a water closet, urinal, and bath, as without these accessories it is reported to be of little, or no use. At Reading, a receiving room for recruits was in course of construction, and when completed, it is stated, will prove an important sanitary acquisition to this station. In London the drainage of several of the barracks was improved during the year. Additional accommodation for the treatment of the sick of the London garrison is urgently needed. The fact that no isolated building exists for the treatment of infectious cases is said to be a source of danger to the other patients in hospital. The amount of accommodation for married soldiers at Kensington Barracks is said to be insufficient, and the baths, washhouses, &c., of the Guards detachment there require improvement, they being cold, damp, and badly lighted.

Woolwich District.

The Principal Medical Officer, Surgeon-Colonel W. S. M. Price reports that the general health of the troops was good. There was a severe epidemic of enteric fever among the civil population during the year, but fortunately it did not extend to the troops. The sanitary conditions in and around Woolwich were on the whole good. A new scheme of drainage was being carried out in the Royal Artillery Barracks, which was not expected to be completed for several months. Numerous other sanitary services were carried out during the year, such as improving ventilators in some of the barracks and quarters

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replacing old pattern waterclosets with new ones, repairs to drains and to stands for urine tubs, providing automatic flushing apparatus in some of the latrines, and enlarging the sergeants' mess. There was no material improvement as regards ablution arrangements, and no alterations as regards cooking, soldiers' diets, or clothing. The gymnastic exercises produced a decidedly beneficial effect on the physique of recruits and of men generally.

The Principal Medical Officer also makes the following suggestions calculated to improve the health of the troops. A disinfecting apparatus, for moist heat disinfection, should be provided for the use of the garrison generally. An isolated building for the treatment of infectious diseases should be built in connection with the Herbert Hospital, as also some wards for officers, and some small special wards for ophthalmic, serious cases, &c. The system of urine tubs is very objectionable; proper urinals should be erected near barrack rooms, for night use only. Some of the barrack rooms should be better lighted as the number of gas jets at present in use is not sufficient for the cubic space. At Purfleet, hot water should be laid on to the bath room at the hospital.

Aldershot Division.

The Principal Medical Officer, Surgeon-Major-General H. F. Paterson, M.D., reports that the health of the troops during the year has been on the whole good, but the epidemic wave of zymotic diseases, which had been passing over the United Kingdom, had very naturally been felt at Aldershot, and had materially affected the sick returns, which would otherwise have been most satisfactory. The remaining portion of the reconstruction of the camp had been in steady progress during the year, and great advance was made in the new service of drainage, which was rapidly approaching completion. The new hospital for Marlborough Lines was in course of construction, though it was not expected to be sufficiently advanced for occupation during the year 1896. The right wing of the Cambridge Hospital was completed, and the alteration to the left wing commenced. The new hospital for infectious diseases was expected to be shortly completed. A new mess for the Army Medical Staff with quarters for nine officers had been built, and was to be taken into occupation before the end of the year 1896. The state of the sewage farm which did not, to the same extent, present the objectionable features of former years, must, it is stated, if allowed to remain on its present site, be a menace to the health of the troops. When all the above improvements are completed, and when the sewage farm has been removed to a safe distance from the vicinity of the barracks, the military station of Aldershot ought to be, so states the Principal Medical Officer, one of the most healthy in the kingdom. The effect of the gymnastic training of the troops, which is carried out more vigorously at the station than at probably any other, had been altogether favourable as regards health.

Channel Islands.

The Senior Medical Officer, Surgeon-Lieut.-Colonel A. Kirwan, remarks that the general health of the troops quartered in the Channel Islands was good, and the sanitary condition of the barracks and quarters was as satisfactory as could be expected. It is stated that a small ward for the treatment of infectious cases is required at St. Peter's, also some reliable means for the disinfection of articles of clothing, bedding, &c. Similar means for disinfection are wanted at St. Helier's also. Among the sanitary services effected during the year were the completion of quarters for married soldiers at St. Helier's, renewal of the drains at Government House; disused drain from staff-sergeant's quarter at Elizabeth Castle filled throughout with lime concrete; and at the hospital, Fort Regent, drainage relaid, and a disused underground cistern filled in. At the officers' quarters, Fort George, Guernsey, six new pattern waterclosets have been put in. A new urinal has been erected at Fort

Albert, Alderney. A temporary gymnasium was latterly established in a casemated room in barracks at Fort Regent, in substitution for the town gymnasium which had previously been lent on hire. The change is stated to be an improvement, enabling the course of training to be more complete and systematic. The physical training of the troops is described as being, on the whole, beneficial, notwithstanding the inadequate ventilation, bad light, and damp, usually found in casemated chambers. *United Kingdom.*

Scottish District.

The Principal Medical Officer, Surgeon-Colonel R. H. Carew, D.S.O., reports that the health of the troops was very good, and compared favourably with the previous year. At Aberdeen the barracks were in a satisfactory condition. The latrine accommodation at Castle Hill Barracks was improved during the year. At Ayr the barracks and hospital were kept in good order. Bath accommodation, with hot and cold water, has been provided, and water supply to hospital improved. The barracks at Berwick-on-Tweed were in a satisfactory condition, and they stand in a healthy position. At Edinburgh Castle the ventilation of some of the barracks is stated to be defective, and the latrines near the new barracks are reported to be dark. The conversion of the old ordnance store into a hospital is said to be urgently required. At Leith Fort the block of buildings constituting the officers' quarters is reported to be old and faulty in construction. A new block of married quarters was completed during the year, and was partially occupied. At Piershill certain single rooms in the married quarters have, by means of a connecting door, been converted into two-roomed quarters, and a portion of the drainage has been relaid. At Fort George the ventilation of the barrack rooms was not entirely satisfactory, and it was suggested that openings should be made in the windows and the doors. Two Berkefeld filters have been taken into use; they appear to be efficient, and are kept clean and in good order. At Maryhill, Glasgow, the accommodation in the men's barracks was ample, but in the married quarters it was somewhat limited. An additional stove has been provided in each large ward in the hospital, and the water supply to the married quarters has been improved. At Glencorse the barracks were in very good condition, but some of the married quarters are rather low and dark. The provision of a day room for the patients in hospital is said to be very desirable. At Hamilton ventilating tubes have been inserted in the roofs of all the huts, and the walls of those facing the square were covered with concrete. The latrines of the married quarters are considered to be too far away, and too exposed. The barracks and married quarters at Inverness were in good order, and the ventilation good. New outside latrines and urinals were constructed during the year, with Jenning's patent continuous pipe. At Perth the barracks, though old, are suited for the purpose intended; they were kept in good order, and afforded sufficient accommodation. A new latrine for the married families was erected during the year. At Stirling the general sanitary condition of the barracks was reported to be good, but several repairs were much needed to the hospital; representation was made to the authorities for having them attended to.

Belfast District.

The Principal Medical Officer, Surgeon-Colonel M. Cogan, reports that the general health of the troops throughout the district was very good; an epidemic of influenza raised the percentage of the sick, but it was generally of a mild type. At Armagh the barracks, huts, and hospital were in a satisfactory condition, and the accommodation was sufficient. At Belfast the drainage works were being pushed on, and it is hoped that they will be completed by the end of 1896. Four new lavatories were erected in rear of one block of barracks. The station hospital was insufficient for the requirements of the

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garrison, and more accommodation is said to be needed for the treatment of infectious diseases. At Drogheda the condition of the barracks and vicinity was satisfactory. At Dundalk some of the huts were re-floored, and the space beneath the floors was cleansed and concreted. The main drain running from the town, close to the hospital, has been completed, and the low-lying space between the hospital and the sea wall is now well drained. At Enniskillen the accommodation in barracks is on the old construction; overcrowding to a slight extent existed at times, but it was remedied by placing men under canvas in the barrack square. At Londonderry new barracks were in course of construction, and the drainage was thoroughly overhauled and re-modelled. At Newry the barracks were in good order, but there is a deficiency of married quarters, and it is difficult to obtain good lodgings in the town, most of the houses being dirty and insanitary. The sanitary condition of the barracks and vicinity at Omagh was satisfactory.

Dublin District.

The Principal Medical Officer, Surgeon-Major-General J. Colahan, M.D., shows in his annual report that there was an increase in the admission rate, principally due to an epidemic of influenza in the early part of the year. In Dublin the accommodation for married families at the Richmond Barracks is quite inadequate, many families having only one room for cooking, living, and sleeping in. The re-construction of the drainage of Beggar's Bush Barracks was completed, and the barracks re-occupied. Important improvements were made to the drainage of Ship Street Barracks during the year. At Aldborough House Barracks the Government bakery and butchery were removed, and the barracks occupied by married families. A bath room has been provided to the Marshalsea Barracks. Island Bridge Barracks were vacated during the year on account of a number of cases of enteric fever occurring there. The main drain of these barracks is believed to be defective; it is an old square one, of masonry construction. The drainage of Portobello Barracks was being re-constructed. The married quarter accommodation at Wellington Barracks is reported as insufficient. At the Royal Infirmary the accommodation for the men of the Medical Staff Corps is considered to be unsuitable, being placed over the hospital wards; men returning late at night must cause annoyance to the patients. It has been recommended that a separate building be erected for the men of the Medical Staff Corps at this hospital. At Athlone the drains were found to be imperfectly laid. This matter was duly represented. At Birr the accommodation for married families was quite insufficient, and a large number of families had to live outside barracks, in houses which were stated to be, in many cases, in a very insanitary condition. At Galway the Renmore Barracks are satisfactorily reported on, but owing to the porous nature of the stone walls they are frequently very damp. The Shambles Barracks are said to be old, badly constructed and ventilated, and the rooms are small and low. The Castle Barracks were not occupied during the year; they were principally used as stores, and as quarters for a few married families. At Mullingar the barracks and hospital were in a satisfactory condition, but the accommodation for the married families is said to be insufficient.

Cork District.

The Principal Medical Officer, Surgeon-Colonel W. E. Riordan shows in his annual report that the number of men admitted into hospital, and the number under treatment were considerably more than in the previous year, but there were no occurrences relating to health or the general hygienic conditions of the troops at any station in the district which are worthy of special notice. At Ballincollig the improved system of water supply was found to work in a satisfactory manner, and the sewage farm in connection

with the drainage of the barracks was working well. The station is reported to be in a satisfactory condition. At Buttevant the barracks are favourably situated and in a satisfactory sanitary condition. At Cahir the barrack accommodation is sufficient and the ventilation ample; the system of drainage (International) employed at this station gives statisfaction. At Clonmel the water supply was thought to be suspicious, but as soon as the waterworks are completed it will be obtained from the new supply for the town. At Cork the barracks were in a good sanitary condition, and several minor defects, including the relaying of surface drains, traps, &c., were attended to. At Fermoy the sanitary condition of the neighbourhood in the immediate proximity of the barracks is said to be very unsatisfactory; representations were made and improvements promised. The barracks at Kilkenny are well situated, but the system of drains is said to be imperfect, and it is thought that it would be advantageous to reconstruct them on a new plan. The general sanitary condition of Kinsale was satisfactory. A new gymnasium was in course of construction, and two new quarters for warrant officers were built on modern plans and improvements. A new mortuary for the hospital is said to be greatly needed. The barracks in Limerick are very scattered, and for the most part badly situated in the most neglected parts of the city, which is in a very insanitary condition. Frequent complaints as to the surroundings of these barracks were made to the local authorities. A new system of drainage was in course of construction in the new barracks, an improvement much required. At Queenstown a new system of drainage was in course of construction. At Tipperary the barracks are built on a good site, but the buildings are said to be very damp. The sanitary conditions of the barracks, &c., at Tralee are reported on satisfactorily. At Waterford the barracks are situated on a healthy site, and were in a good sanitary condition. Some overcrowding occurred in the married quarters during the year, this was reported and rectified. *United Kingdom.*

Curragh District.

The Senior Medical Officer, Brigade-Surgeon-Lieut.-Colonel J. Barry, M.D., reports that the general health of the troops during the year was exceptionally good. The huts at the Curragh are cold and draughty in consequence of their age and the exposed site. The means for carrying off the rainwater from the roofs were said to be insufficient. The school accommodation was very limited, and resulted in overcrowding. Additional ventilators were, however, to be provided. The means of ablution are reported as insufficient for the use of the regiments. The drainage of the Curragh will be completed as the new buildings are erected; the hut ablution rooms were said to be very badly drained, but this was being altered. The deficiency of latrines and urinals for the mess establishment and officers' servants was being met. The drainage of the wards of the station hospital was reconstructed during the year, and a refuse pit provided. The ventilation of the officers' mess has been improved. At Newbridge the drainage of the barracks was found to be defective, and considerable improvements were made during the year by providing disconnecting manholes, and ventilation. Gymnastic training was constantly being carried out in the large gymnasium at the Curragh, and the effects of the training have been reported as decidedly beneficial to health.

III.—ON THE HEALTH OF THE TROOPS SERVING IN THE MEDITERRANEAN.

Sickness and Mortality.

I.—GIBRALTAR.

Gibraltar. The average strength of the warrant officers, non-commissioned officers, and men serving in the Command during the year was 4,690, and the force consisted of Nos. 5, 14, 15, and 17 Companies of the Eastern Division, Royal Artillery, throughout the year, Nos. 21 and 22 Companies which arrived from India in February, and No. 23 Company from Aden in November, and No. 9 Company which left for India in December; 4 companies of the Royal Engineers; the 1st Battalion West Yorkshire Regiment arrived from home in January in relief of the 2nd Battalion King's Royal Rifle Corps which proceeded to Malta, the 1st Battalion South Wales Borderers joined from Egypt in April to relieve the 2nd Battalion East Lancashire Regiment which returned to England, the 1st Battalion Middlesex Regiment left for home in February, its place being taken by the 1st Battalion Cameron Highlanders from Malta, and the 2nd Battalion West Yorkshire Regiment landed from Aden in November, and left to form part of the Ashanti expedition early in December; and detachments of the Army Service, Medical Staff, and Ordnance Store Corps, and Garrison Staff served throughout the year.

The following table shows the more important statistics of sickness and mortality among the troops forming the garrison:—

1895. Average Strength.	Admissions.	Deaths			Invalids		Average constantly Sick.	Ratio per 1,000 of Strength.				
		In the Command.	Of Invalids.	Total.	Sent Home.	Finally Discharged.		Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
4,690	3,899	17	1	18	67	58	277·29	831·3	3·84	14·28	12·37	59·12

Compared with similar calculations for 1894, little change is observed, the admission ratio being lower by 1·2 per 1,000, while the mortality and constantly sick rates have increased by ·87 and ·11 respectively; in comparison with the average ratios for the preceding ten years, the admission rate has increased by 89·1, and the constantly sick rate by 13·16, but the death rate has declined by 1·06 per 1,000.

The average sick time to each soldier, 21·58 days, and the average duration of each case of sickness, 25·96 days, were both fractionally longer than the corresponding periods in the year before, while in comparison with similar average periods for the preceding ten years the former is longer by 4·80, and the latter by 3·36 days.

In Abstract XXXV. will be found the principal statistics of the various regiments and corps which were stationed at Gibraltar during the year, from

which it will be seen that in the Eastern Division, Royal Artillery, excluding No. 23 Company, which was only present for about five weeks, the highest admission ratio was 1033·1 per 1,000 in No. 22 Company, which arrived from India in February, the lowest being 513·4 in No. 17 Company, which was in the Command throughout the year. The highest constantly sick rate, 61·44 per 1,000, was in No. 21 Company, and the lowest, 45·16, in No. 5 Company. Among infantry regiments of fair average strength the highest admission and constantly sick rates were 1309·3 and 89·00 per 1,000 in the 1st Battalion West Yorkshire Regiment, the lowest being 598·8 and 47·90 per 1,000 in the 1st Battalion Middlesex Regiment. There were 5 deaths, or 4·30 per 1,000, in the Artillery, 1 death, or 2·82 per 1,000 in the Engineers, 10, or 3·35 per 1,000 in the Infantry, and 1, or 13·33 per 1,000, in the Medical Staff Corps. *Gibraltar.*

As to the influence of age on sickness and mortality, it has been found that the admission rate among men under 20 years of age was 987·9, rising to 999·2 among those between 20 and 25, falling to 563·6 among those in the next quinquennium, and, still further, to 386·7 among men of 30 years of age and upwards. In the last year the ratios of men in the two first periods were in reverse order, but did not differ greatly from those in the year under report, while in the succeeding ages the ratios declined in a similar manner, but were considerably lower. Mortality was highest, 5·33 per 1,000, among men of 30 years or more, next, 4·86, among those between 20 and 25, 3·45 among men under 20 years of age, and lowest, ·79 per 1,000, among men between 25 and 30 years, the sequence of ratios being exactly the same as that observed in the preceding year.

Among men in their first year of service in the Command the admission ratio was 1051·6 per 1,000, followed by 726·4 and 445·9 among those in their second and third years, and 511·6 among men who had served for three years or longer in the Command, the corresponding rates for the previous year being 1084·4, 837·8, 593·7, and 566·9 per 1,000 respectively. Mortality among men in their first year was at the rate of 3·52 per 1,000, rising to 4·23 among men in their second year, then decreasing to 1·93 among those in their third year, the highest ratio, 4·42 per 1,000, occurring among men of three years and upwards. In 1894 the highest rate was among men in their first year, and the lowest among those in their third year, and the ratios were, with one exception, that for men in their third year, lower than in 1895.

In Abstract No. II. is a table showing the principal statistics of sickness and mortality arranged according to the several groups and orders of diseases.

General Diseases.—*Diseases dependent on Morbid Poisons.—Eruptive Fevers* were represented by a single case of measles.

Enteric Fever caused 12 admissions and 4 deaths, the equivalent ratios being 2·6 and ·85 per 1,000 respectively, as compared with 5·5 and 1·27 in the previous year, and with 9·8 and 1·64, the average ratios for the preceding nine years. The per-centage of mortality to attack was 33·3, as against 23·1 in 1894 and 16·7, the nine years' average. It is stated that in no instance could the origin of the disease be traced to any definite cause, but in one case at Grand Casemates Barracks a faulty drain was discovered near the room in which the man lived, and in another case it was found that the man was in the habit of purchasing oysters from a hawker, and as the source from which they came was not above suspicion, their sale in barracks was prohibited, and the troops warned as to the danger of eating them. Of the 12 cases, 3 were in men of under 20 years of age, 8 in men between 20 and 24, and 1 in a man whose age was 26 years; 7 of the men attacked had been less than one year in the Command, 2 were in their second year, and 3 had resided more than two years. It is noteworthy that no case came from the South Barracks, which in 1895 gave the largest number of admissions, and where certain sanitary improvements have been made.

Simple Continued Fever was the cause of 87 admissions, or 13·5 per 1,000, which is lower than in 1894 by 5·3, and than the average ratio for nine years by 7·9. Of the men attacked, 15 were under 20 years of age, 49 were between

Gibraltar. 20 and 25, 20 were in the next quinquennium, and 3 were between 30 and 35 years of age. The duration of the cases was as follows:—

Duration.	Number of Cases.
Under 1 week - - - - - -	9
1 and under 2 weeks - - - - -	32
2 „ 3 „ - - - - - -	8
3 „ 4 „ - - - - - -	5
1 „ 2 months - - - - -	25
2 „ 3 „ - - - - -	7
3 „ 4 „ - - - - -	—
4 months and over - - - - - -	1
Total - - - - - - -	87

The duration of the cases approximated closely to that observed in the previous year, when the periods of 1 and under 2 weeks and 1 and under 2 months also showed the largest numbers. No case occurred in January, but there were 5 in February, 11 in March, 4 each in April and May, 10 in June, 9 in July, 15 in August, 17 in September, 6 in October, and 3 each in November and December. The medical officer in charge of the station hospital remarks that "in regard to the etiology of the disease, I think that "further observation bears out the view previously expressed, that the "predisposing causes are youth, recent arrival, and exposure to chills, but in "the more prolonged cases complicated with such conditions as anæmia and "debility with protracted convalescence, and possibly one or more relapses, "another and more specific cause must be attributed, viz.—drain effluvia."

Dysentery furnished four admissions as compared with 2 in the year before, and there were 2 cases of influenza as against 24 in 1894.

Malarial Fevers.—There were 116 admissions, all for ague, and mostly in men who had arrived in Gibraltar from India. The ratio per 1,000, 24·7, is higher than that for the previous year by 24·1 and above the nine years' average rate by 23 5. No death occurred.

Septic Diseases gave 6 admissions, all for erysipelas.

Venereal Diseases.—Under *primary syphilis* 38 admissions are recorded, equal to 8·1 per 1,000, exactly the same ratio as in 1894. If to this be added the sickness from simple venereal ulcer, for which there were 637 men admitted and an average of 71·08 constantly sick, the admission ratio for primary venereal sores equals 143·9 per 1,000, in excess of that for the preceding year and the average rate for nine years, by 9·6 and 27·5 respectively. *Secondary syphilis* with 139 cases gave a ratio of 29·6 per 1,000, above the last year's rate by 8·8 and above the average rate by 2·7. *Gonorrhœa* was the cause of 670 admissions, or a ratio of 142·9 per 1,000, below the corresponding rate for 1894 by 10 6, but above the average rate of the preceding nine years by 22·2. Taking these forms of venereal disease together, the total admission ratio amounted to 316·4 per 1,000, higher than in the year before by 7·8 and than the nine years' average rate by 52·4. The total ratio of constant inefficiency from these diseases was 31·65 per 1,000, higher in the two comparisons by 1·21 and 11·20 respectively.

One fatal case of *hydrophobia* occurred. The man was bitten by a dog in October 1894 and the wound healed after cauterization; he enjoyed his usual health until January 28th, 1895, when he felt unwell, with nausea, &c; on admission to hospital at 6 a.m. on January 31st he exhibited all the well-developed symptoms of hydrophobia and died at 12.50 p.m. The scar of the bite, one inch long, was evident on the left thumb.

Parasitic Diseases.—9 admissions occurred, 8 of which were for tænia solium.

Alcoholism gave rise to 18 cases, of which one is returned as delirium tremens, the ratio, 3·8 per 1,000, compares favourably with 6·2 in 1894, and with an average rate of 5·3.

Debility, with 27 admissions, gave a ratio of 5·7 per 1,000, higher than in the previous year by 2·3 and above the average rate for nine years by 1·2.

Rheumatism.—99 cases are returned, including 3 of rheumatic fever, being in the ratio of 21·1 per 1,000, below the last year's rate and the average rate by 5·1 and 9·1 respectively. *Gibraltar.*

For *Tubercular Diseases* there were 11 admissions and 4 deaths, including that of an invalid who died after leaving the Command, all being cases of lung affection. The admission ratio, 2·3 per 1,000, is higher than both the last year's rate and the average of nine years by ·4.

Other diseases of Group D included 30 cases of papilloma, 7 of anæmia, 1 case of osteoma, and 1, fatal, of carcinoma.

Local Diseases.—*Diseases of the Nervous System.*—There were 47 admissions, including 4 for mental affection, and 2 deaths. The admission ratio, 10·1 per 1,000, is below that for the year before by 8·4, but above the nine year's average rate by 2·4. The principal cause of sickness was neuralgia, of which 28 cases were admitted, and there were 5 cases of vertigo and 3 of epilepsy. The deaths were due to inflammation of cerebral membranes and epilepsy respectively.

Diseases of the Eye.—46 cases are returned, the equivalent ratio being 9·8 per 1,000, which is identical with the previous year's rate but 1·3 below the average. Conjunctivitis alone furnished more than half the admissions.

Diseases of other Organs of Special Senses, with 59 admissions, mostly for affections of the external meatus, and including 2 for nasal disease, gave a ratio of 12·6 per 1,000, fractionally higher than in 1894, and above the average rate by 4·3.

Diseases of the Circulatory System caused 23 admissions and 1 death. The ratio of prevalence was 4·9 per 1,000, below that for the previous year by 1·5, but above the average rate for the preceding nine years by 1·8. There were 9 cases of palpitation, 7 of varix, 6, one, fatal, of valvular disease of the heart, and 1 case of thrombosis.

Diseases of the Respiratory System.—176 admissions are recorded, equal to a ratio of 37·5 per 1,000, above the last year's rate and the average by 12·2 and 10·5 respectively. Bronchitis accounted for 134 of the cases, and there were 26 of pneumonia, one fatal, 10 of pleurisy, and 8 of asthma.

Diseases of the Digestive System were the cause of 504 admissions, or a ratio of 107·5 per 1,000, below the corresponding ratio in the year before by 9·2, but above the nine years' average rate by 23·8. Various forms of throat affection contributed 191 of the cases, and among the remainder were 96 of colic, 71 of dyspepsia, 63 of diarrhœa, 17 of hepatic disease, and 14 of hernia. There was one death from internal strangulation of intestines.

Diseases of the Lymphatic and Glandular System gave rise to 115 admissions, being in the ratio of 24·5 per 1,000, which is in excess of the previous year's rate by 7·5 and of the average rate by 13·3. Of the cases, all but one were of inflammation or suppuration of the lymphatic glands.

Diseases of the Urinary System were the origin of 12 cases, 9 of which were for incontinence of urine. The ratio per 1,000 was 2·6, exceeding both that of the year before and the average rate by ·9 and 1·1 respectively.

Diseases of the Generative System.—726 admissions are returned, or a ratio of 154·8 per 1,000, which is greater than that recorded for the preceding year by 11·7, and 56·1 above the average. Simple venereal ulcer accounted for 637 of the cases, the remainder including 37 each of balanitis and orchitis.

For *Diseases of the Organs of Locomotion* there were 35 admissions and 1 death; the admission ratio, 7·5 per 1,000, is 1·0 below the last year's rate, but 2·2 above the average. Two-thirds of the cases were returned as synovitis, the death being due to suppurative arthritis.

Diseases of the Connective Tissue, with 117 admissions, gave a rate of 24·9 per 1,000, higher in the two comparisons by ·6 and 6·2 per 1,000. Of the cases, 81 were due to abscess, and 36 to inflammation of the connective tissue.

Diseases of the Skin.—There were 262 admissions, mostly for boils, eczema, ulcer, and itch, the ratio, 55·9 per 1,000, being above that for the year preceding by 1·5, and in excess of the average rate by 10·6.

Injuries.—468 cases are returned, or a ratio of 99·8 per 1,000, which is less than that for 1894 by 25·6 and 3·0 below the average of the preceding nine years. Under general injury a case of suicide by strangulation is recorded, a man having hanged himself by his putties to the grating above a cell door. The court of inquest was of opinion that he was temporarily insane at the

Gibraltar.

time, and that his insanity was induced or accelerated by drink. No motive for the act could be discovered. All the admissions were for local injuries, including 162 for wounds, 101 each for contusions and sprains, and 74 for abrasions; and there was one death, suicidal, by gunshot wound of head; in this case also it was found that the man was suffering from temporary insanity through drink, and no motive could be assigned.

Invaliding.—The number of invalids sent to England during the year was 67, the ratio, 14·28 per 1,000, being fractionally higher than in 1894, but below the decennial average rate by 5·36. There was also one man discharged in Gibraltar, who is included in the following calculations.

Excluding corps whose average strength was less than 100 men, the highest invaliding rate was 26·49 per 1,000 in No. 22 Company, Eastern Division, Royal Artillery, the next below, 23·95, being in the 1st Battalion Middlesex Regiment. The lowest rate was 5·35 per 1,000 in No. 17 Company, Eastern Division, Royal Artillery, and the next above, 9·01, in the 1st Battalion South Wales Borderers. As to the ages of the men invalided, 6, or 10·36 per 1,000, were under 20 years; 38, or 15·38 per 1,000, were between 20 and 25; 18, or 14·23, were in the next quinquennium; and 6 men, or 16·00 per 1,000, were 30 years of age or over, this sequence of ratios being similar to that observed in the previous year, when the figures were 7·22, 15·62, 14·66, and 17·54 per 1,000 respectively. With reference to service in the Command, 34 men, or 13·29 per 1,000, were in their first year, 12, or 16·93, in their second year, 7, or 13·51, were in their third year, and 15 men, or 16·57 per 1,000, had been more than three years in residence. In the preceding year the highest rate, 18·05 per 1,000, occurred among men of more than three years' service, followed by 16·15, 11·83, and 10·08 among those in their first, second, and third years respectively. The principal causes of invaliding among those who embarked for home were nervous affections, 9 cases, or 1·92 per 1,000 (inclusive of 4, or ·85 per 1,000, of mental disorders), tubercle of lung, 8 cases, or 1·71 per 1,000, debility and diseases of the respiratory system each 7 cases, or 1·49 per 1,000, ophthalmic affections 6, or 1·28 per 1,000, and secondary syphilis 5 cases, or 1·07 per 1,000.

Including the man discharged locally, there were 58 men discharged the service as medically unfit, the ratio per 1,000 being 12·37, which is higher than the previous year's rate by 1·95, and than the average rate for the preceding ten years by 3·66. The principal causes of discharge were, nervous affections 13 cases, or 2·77 per 1,000, including 10 men, or 2·13 per 1,000, who were discharged on account of mental disease; diseases of the circulatory system and tubercular disease each 9, or 1·92 per 1,000, and diseases of the eye 5 cases, or 1·07 per 1,000.

Officers.—In an average strength of 136 officers there were 66 cases of sickness, the ratio of prevalence being 485·3 per 1,000 as compared with 427·5 in the preceding year. No death occurred, but 3 officers were invalided, one each for debility, rheumatism, and melancholia. Among the cases treated were 8 of rheumatism, 7 of influenza, 5 of simple continued fever, 5 of bronchitis, and 3 of hepatic affections.

Women.—The average strength was 261, and the number of cases treated 169; the ratio, 647·5 per 1,000, is below that recorded for the year before by 9·9. There were 13 cases of simple continued fever, 7 of influenza, 15 of debility, 8 of rheumatism, including 2 of rheumatic fever, 18 of bronchitis, 14 of sore throat, and 18 of disorders of the generative system. No death is returned.

Children.—473 cases of sickness and 22 deaths are recorded, the average strength being 522; the ratio of prevalence was 906·1 per 1,000, as compared with 953·8 in the year preceding, and the mortality rate 42·15, as against 40·46. The most frequent cause of admission was bronchitis, 85 cases being returned, and there were 54 of diarrhœa, 52 of whooping cough, 35 of sore throat, 21 of simple continued fever, 18 of debility, 5 of diphtheria, &c. Of the deaths, 10 were due to diarrhœa, 4 to diphtheria, 3 to debility, 2 to whooping cough, and one to chronic hydrocephalus, infantile convulsions, and bronchitis respectively.

Sanitary Conditions.—The Principal Medical Officer, Surgeon-Colonel W. A. Catherwood, M.D., states that a sanitary defect at Wellington Front Barracks, due to discharge of sewage into tidal water in front of the barracks, will be remedied when the new system of drainage discharging at Europa

Point is completed, and he has recommended the reconstruction of the latrines at each end of the lower verandah at the married quarters, King's Bastion. No change is reported in the water supply, nor rations; the refrigerator referred to in last year's report was completed, but the issue of frozen meat had not commenced. Among the sanitary improvements carried out during the year the following are the most noteworthy:—Officers' quarters, Southport Street, old drain leading from sewer in road cut off and drains relaid. Warrant officers' quarters, College Street, watercloset erected and sink provided. Staff-Sergeants' quarters, Bruce's Farm, waterclosets and sinks fixed and connected with town drainage. Poca Roca, drainage provided and connected with town system, and catchpit for urine demolished. Grand Casemates Barracks, floors of six barrack rooms renewed, drains at back of barracks relaid, and staff sergeant's quarters over waterport gate remodelled. South Barracks, rubbish bin provided, dry area at back of outbuildings constructed, gutter provided at back of main block for surface drainage to discharge in open, inner yard at the quartermaster's stores concreted, and the drain from the servants' watercloset at the Commanding Officer's quarters relaid. A 5,000 gallon fresh-water tank has been fixed at Rosia Casemates, and a sink provided in the sisters' day room at the Station Hospital. At the military prison all foul drains were taken up and relaid in Portland cement concrete, new waterclosets and sinks provided, surface drains taken up and gutters provided, and the lighting and ventilation of the cells improved. The whole of the drains at Buena Vista married quarters were taken up and relaid in Portland cement concrete. *Gibraltar.*

It is reported that the gymnastic exercises had a beneficial effect in promoting the physical development of young soldiers.

II.—MALTA. *Malta.*

The average strength of the troops serving in Malta was (excluding the Royal Malta Artillery) 8,292, and the force was composed as follows:—

Nos. 2, 22, 29, and 36 Companies, Southern Division, Royal Artillery, throughout the year. No. 25 Company, which embarked in January for Singapore, and No. 6 Company, which left in February for Ceylon, while Nos. 8 and 30 Companies arrived from Hong Kong in January, and No. 16 Company from Ceylon and No. 26 Company from Singapore in March; three companies of the Royal Engineers; the 1st Battalion Royal West Surrey Regiment, left for India in January, the 2nd Battalion Connaught Rangers embarked for Egypt and the 1st Battalion Cameron Highlanders for Gibraltar in February, the 1st Battalion North Staffordshire Regiment for Egypt and the 2nd Battalion East Surrey Regiment for England in October, and the 2nd Battalion Leinster Regiment for Bermuda, and the 1st Battalion Gloucestershire Regiment for Egypt in November; the arrivals being the 2nd Battalion King's Royal Rifle Corps from Gibraltar in January, the 1st Battalion Lincolnshire Regiment and the 1st Battalion Highland Light Infantry in February, the 1st Battalion Royal Lancaster Regiment, and the 1st Battalion West Riding Regiment in October, and the 2nd Battalions of the Royal Warwickshire and Worcestershire Regiments in November, the six battalions last mentioned all from England; and detachments of the Army Service, Medical Staff, and Ordnance Store Corps, and Garrison Staff, throughout the year.

In the subjoined table are given the most important of the statistics of sickness and mortality in the Command during the year:—

1895. Average Strength.	Admissions.	Deaths			Invalids		Average constantly Sick.	Ratio per 1,000 of Strength.				
		In the Command.	Of Invalids.	Total.	Sent Home.	Finally Discharged.		Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
8,292	6,397	53	4	57	122	69	440·85	771·5	6·87	14·71	8·32	53·17

Malta.

Compared with a similar table for 1894 an increase of 132·0 per 1,000 is observed in the admission ratio, one of 1·06 in the mortality rate, and of 7·81 in that of constant inefficiency; in comparison with similar average rates for the previous decennium the admission and constantly sick rates have increased by 118·8 and 9·85 per 1,000 respectively, while the death rate is lower by 1·17. The average sick time to each soldier was 19·40 days, longer than in the preceding year by 2·84, and than the decennial average period by 3·59, the average duration of each case of sickness, 25·15 days, being shorter than in the year before by about three-quarters of a day, but longer than the ten years' average by 1·19 days.

The more important of the statistics of sickness in the different arms of the Service and in the several corps which served in the Command during the year are shown in Abstract XXV. The admission, mortality, and constantly sick rates in the Artillery were 715·7, 6·16, and 52·74 per 1,000 respectively, all being considerably higher than in the preceding year. The highest admission rate in any company of fair average strength was 916·1 in No. 8 Company at Fort Tigne, and the hutments for ten months after arrival from Hong Kong in January, and then at upper St. Elmo, other high ratios being 892·2 in No. 30 Company, also from Hong Kong in January, stationed at Fort Ricasoli, and 846·1 in No. 29 Company at Fort Ricasoli seven months, and at St. James' Cavalier and Upper St. Elmo for five months; the lowest ratio was 582·4 in No. 22 Company at St. James' Cavalier and Upper St. Elmo for seven months and at Fort Ricasoli for five months; the ratio of constant inefficiency was also highest, 72·00 per 1,000, in No. 8 Company, and next, 69·33 per 1,000, in No. 26 Company, from Singapore in March, afterwards stationed at Fort Tigne and the hutments, the lowest ratio being 40·72 per 1,000 in No. 30 Company, which, as remarked above, gave the second highest admission ratio. In the Infantry the admission rate was 811·0, the death rate 6·58, and the constantly sick rate 55·01 per 1,000, as compared with 678·2, 5·40, and 48·73 respectively in 1894. Among regiments with an average annual strength of more than 100 men, the 1st Battalion Royal Lancaster Regiment, quartered at Pembroke Camp after arrival from England in October, gave the highest admission ratio, 1206·3 per 1,000, the next highest, 1145·3 per 1,000, occurring in the 2nd Battalion Leinster Regiment stationed at Fort Chambray, Gozo, until departure for Bermuda in November; the lowest rate was 465·7 in the 1st Battalion North Staffordshire Regiment at Verdala and Lower St. Elmo until embarkation for Egypt in October, next above being 503·5 in the 1st Battalion Cameron Highlanders at Lower St. Elmo, leaving for Egypt in February. The highest mortality rate was 11·63 in the 2nd Battalion Leinster Regiment, then 11·61 per 1,000 in the 1st Battalion Highland Light Infantry at Verdala for the greater part of the year, arriving in the Command from England in February, the lowest being 1·27 per 1,000 in the 1st Battalion Lincolnshire Regiment, which also arrived from home in February and was quartered at Pembroke Camp for the greater part of the year; in several corps no mortality is recorded, but the average strength in each case was comparitively small. The constantly sick rate was highest, 75·91 per 1,000, in the 2nd Battalion Leinster Regiment, next below being 75·17 in the 2nd Battalion King's Royal Rifle Corps at Floriana and Notre Dame, arriving from Gibraltar in January; the lowest rates were 32·51 in the 1st Battalion North Staffordshire Regiment, and 40·05 per 1,000 in the 1st Battalion West Riding Regiment at Verdala Barracks after arrival from England in October.

The influence of age on the sickness and mortality among the troops has been calculated as far as possible, and it is found that the admission rate among men under 20 years of age was 811·1, rising to 945·7 among men between 20 and 25, falling to 464·0 among those in their next quinquennium, and to 364·3 among men of 30 years of age and upwards. This sequence of ratios has been recorded for several years, but in 1894 all the rates were lower than in the year under report. The mortality rate among men under 20 years was 7·91 per 1,000, falling to 5·98 and 4·87 respectively among men from 20 to 25, and 25 to 30 years, the highest rate, 12·75 per 1,000, occurring in men of 30 years of age and upwards. In the preceding year the highest rate was also among men of 30 and upwards, but the mortality was more evenly distributed throughout the other periods.

Among men with less than one year of service in the Command the admission rate was highest, 970·1 per 1,000, next being 763·3 among men in their

third year, followed by 557·0 among men in their fourth, 509·7 among those in their second year, and 446·6 in men who had served for four years or more. In the last year the highest and lowest rates occurred among men in their fourth and second years of service respectively. The highest rate of mortality was 11·60 among men in their third year, next below being 7·28 among men of four years and upwards, then 6·18 among those in their first year, 5·11 among those in their second, and 4·70 among men in their fourth year of service in the Command, the sequence presenting no similarity with that exhibited in the preceding year, when the highest ratio occurred in men of four years' service or longer.

The principal statistics of sickness and mortality according to the several groups and orders of diseases are given in Abstract III.

GENERAL DISEASES.—*Diseases dependent on Morbid Poisons.—Eruptive fevers* were represented by 2 cases of scarlet fever.

There were 23 admissions for *enteric fever*, and 10 deaths occurred, the equivalent ratios being 2·8 and 1·21 per 1,000, lower than in 1894 by 2·5 and ·31, and than the average rates for the preceding nine years by 3·9 and 1·09 respectively. The per-centage of mortality to attack was 43·5, as compared with 28·6 in the year before, and 34·2, the average for nine years. As to the age of the men attacked, 6 were under 20 years, 2 were in their 21st, 5 in their 22nd, 3 in their 23rd, and 3 in their 24th, while 4 were 24 years of age or over. No man was admitted while in his first year of military life, but 9 were in their second year, 2 in their third, 5 in their fourth, 2 in their fifth, and 5 had more than 5 years' total service, while 17 had been less than one year in the Command, 4 were in their 2nd year, and 2 in their third year. As to seasonal prevalence, 4 cases each occurred in the first and second quarters, 5 in the third, and 10 in the fourth quarter of the year. Ten cases originated in Fort Manoel and hutments, two occurring in September in the 2nd Battalion East Surrey Regiment, and eight in November and December in the Highland Light Infantry; the drainage being found defective the barracks were evacuated, and no further case occurred. From Pembroke Camp 4 cases were admitted in January, following the outbreak which was referred to in the last report as occurring in December 1894, but no other case occurred until August, when there was one admission, another which took place in October being in a man who clearly contracted the disease before arrival in Malta. Of the remaining cases, 3 were admitted at Gozo, no satisfactory explanation for their occurrence being forthcoming, 2 from Fort Tigne (one probably due to a defective drain, the other untraceable), 1 occurred in a patient who had been more than three months in Cottonera hospital, where the drainage was found to be faulty, and 1 at Fort Spinola, attributed to a foul unsealed cesspit.

Simple Continued Fever.—1,401 admissions are recorded, and there were 13 deaths, one being that of an invalid who had left the Command. The admission ratio was 169·0 per 1,000, higher than that for the previous year by 63·6, and than the nine years' average rate by 55·8, the mortality ratio, 1·57 per 1,000, being also higher in the two comparisons by 1·07 and ·53 respectively. This affection caused the constant inefficiency of 108·97 men, equal to a ratio of 13·14 per 1,000, as compared with 8·09 in 1894, and 9·04, the average ratio for the preceding nine years. The increase is attributed to the presence of a large number of unseasoned men, 4,209 having less than one year's service in the Command against 2,488 in the year before, and, perhaps, to the deficient rainfall.

Dysentery.—There were 45 admissions and 3 deaths, the equivalent ratios being 5·4 and ·36 per 1,000 respectively, in excess of those for the previous year by 2·4 and ·23, and above the nine years' average rates by 1·1 and ·15. 27 of the cases occurred in the autumn at Gozo, where the water supply was limited and of bad quality.

There were no other admissions in the 1st sub-group of diseases.

Malarial Fevers.—There were 116 admissions and 2 deaths, one being that of an invalid who had left the Command. The ratio of prevalence is below that for the last year by 20·5, but above the average by 3·3 Ague furnished 112 cases, remittent fever 2, and malarial cachexia 2, most of the cases occurring at Gozo in the 2nd Battalion Leinster Regiment, which received a large draft from India in January. The deaths were both due to remittent fever.

Malta.

Septic Diseases.—Five admissions are returned for erysipelas, the same number as in the previous year and there was one death from this disease.

Venereal Diseases.—Primary syphilis caused 217 admissions, or a ratio of 26·2 per 1,000, as compared with 17·7 in the year before, and with 16·9, the nine years' average ratio, and 26·76 men, or 3·23 per 1,000, were constantly sick, as against 2·03 and 1·82. Including simple venereal ulcer, for which there were 67 admissions and an average constant sickness of 6·49 men, the admission ratio for primary venereal sores was 34·3 per 1,000, below that for the last year by 3·0, and 9·0 less than the average rate for nine years, while the constantly sick rate, 4·01 per 1,000, was higher in both comparisons, by ·42 and ·19 respectively. *Secondary syphilis* was the cause of 184 admissions, being in the ratio of 22·2 per 1,000, which is above that for 1894 by 8·5, and in excess of the average rate by 7·9. The constantly sick rate, 3·11 per 1,000, was also higher, by 1·26 and 1·61 respectively. There were 647 admissions for *gonorrhœa*, the equivalent ratio being 78·0 per 1,000, which is fractionally higher than that for the preceding year, and above the nine years' rate by 11·7; the number of men constantly sick was 51·51, or a ratio of 6·21 per 1,000, an increase of ·20 and 1·45 in the two comparisons. Taking these forms of venereal disease together the total admission ratio was 134·5 per 1,000, as compared with 128·6 in the previous year, and 123·9 the average rate. The total ratio of constant inefficiency from these diseases was 13·33 per 1,000, higher than in 1894 by 1·88, and in excess of the average rate by 3·25.

Under *parasitic diseases* 13 cases are recorded, 11 being due to tænia solium.

There was one case of *scurvy*, while *alcoholism* was less prevalent than in the preceding year, the ratio, 1·6 per 1,000, showing a decline of 3·0. Among 15 admissions one is returned as delirium tremens.

For *debility* there were 51 admissions, or a ratio of 6·1 per 1,000, below the last year's rate and the average by 2·8 and 4·6 respectively.

Rheumatism.—177 admissions are returned, including 8 of rheumatic fever, the ratio being 21·4 per 1,000, which is higher than that for the previous year by 6·0, but lower than the nine years' average rate by 3·9. There was no death under this heading.

Tubercular Diseases caused 26 admissions and 6 deaths, including two invalids who died after leaving the Command, all due to lung affection. The ratio of admission was 3·1, and that of mortality ·72 per 1,000, the former being higher than that for 1894 by ·3 and than the average rate by ·5, and the latter lower by ·29 and ·18 in each case.

Other diseases of Group D. included 50 cases of non-malignant new growth, 7 of anæmia, and one case of purpura, the ratio of admission being 7·0 as compared with 5·8 in the year before.

Local Diseases.—*Diseases of the Nervous System* were the cause of 63 admissions, the ratio being 7·6 per 1,000, above the last year's rate by 3·7, but fractionally below the average; 14 cases of mental disease, equal to 1·7 per 1,000, are included, and among the remainder were 27 of neuralgia, 10 of epilepsy, and 3 of paralysis. No death occurred.

Diseases of the Eye.—There were 106 admissions, nearly four-fifths being due to conjunctivitis, equal to a ratio of 12·8 per 1,000, which is higher than that for the preceding year by 5·1, and than the average ratio by 2·8.

Diseases of other Organs of Special Senses caused 114 admissions, or a ratio of 13·7 per 1,000; above the rate in 1894 by 3·7, and in excess of the average by 3·0. The cases included 96 of inflammation of the external meatus and 4 of nasal affection.

Diseases of the Circulatory System, with 54 admissions, gave a ratio of 6·5 per 1,000, which is higher than that for the previous year by 2·8, but fractionally below the average rate for nine years. Of the cases, 29 are returned under palpitation, and 15 under valvular disease of the heart, and there was one death from fatty degeneration of heart.

Diseases of the Respiratory System.—213 cases and 4 deaths are recorded. The admission ratio was 25·7 per 1,000, as compared with 20·5 in the year before, and 21·9 the average rate for nine years, the death rate being ·48 per 1,000 as against ·63 and ·56. Bronchitic affections contributed 165 admissions, and among the remainder were 29 for pneumonia. Three of the deaths were due to pneumonia and one to empyema.

Diseases of the Digestive System caused an admission rate of 73·6 per 1,000, which is below that in the previous year by 1·0, and less than the nine years' rate by 8·3, the mortality rate, ·72 per 1,000, being above that for 1894 and the average rate by ·34 and ·18 respectively. Of 610 admissions, 266 were for affections of the mouth and throat, and among others were 84 for hepatic disorders, 82 for diarrhœa, 70 for dyspepsia, and 55 for colic. There were 6 deaths, two each being due to peritonitis and abscess of liver, one to perforation of intestines, and one to acute yellow atrophy of the liver. *Malta.*

Diseases of the Lymphatic and Glandular System were the cause of 130 admissions, equal to a ratio of 15·7 per 1,000, in excess of the previous year's and average rates by 9·4 and 9·3 respectively. Inflammation of the lymphatic glands caused all but 10 of the cases.

Diseases of the Urinary System, with 13 admissions, were more prevalent than in 1894, the ratio being 1·6 per 1,000 as against ·7, but comparing favourably with 2·0, the average rate. There were 4 admissions each for incontinence of urine and cystitis, 3 for Bright's disease, and 2 for acute nephritis, one death occurring from Bright's disease.

Diseases of the Generative System were the origin of 232 cases, or a ratio of 28·0 per 1,000, which is below last year's rate by 2·5, and 13·0 less than the average. Beside those for simple venereal ulcer there were 82 for inflammation of testicle, 55 for balanitis, 6 for hydrocele, 5 for varicocele, &c.

Diseases of the Organs of Locomotion.—There were 60 admissions; the ratio, 7·2 per 1,000, was in excess of that for the previous year by 3·1 and above the average rate for nine years by 1·5. Of the cases, 47 were returned under inflammation of joint.

Diseases of the Connective Tissue furnished 265 cases, including 153 of abscess and 111 of inflammation, equal to a ratio of 32·0, which is higher than that for 1894 by 1·2, and above the average by 4·6.

Diseases of the Skin caused 758 admissions, being in the ratio of 91·4 per 1,000, which is higher than the preceding year's rate by 44·9, and 50·0 above the average for nine years. The principal causes of admission were phthiriasis, boils, eczema, ulcer, and whitlow.

Injuries.—783 cases are returned, or a ratio of 94·4 per 1,000, as compared with 82·3 in the year before, and 87·5, the nine years' rate. There were 9 deaths. General injuries were represented by 5 cases each of heatstroke and multiple injury, none proving fatal, and there were 5 deaths from drowning, (three of which were accidental, and the other two recorded as "found drowned"); and 1 from asphyxia from strangulation, a case of suicide by hanging, in which a verdict of "death from strangulation" was returned, no motive being assigned for the act. Of 773 admissions for local injury a large proportion was due to wounds, sprains, and contusions, and of 5 for gunshot wounds, two were caused by splashes from bullets on the range, one by a Morris tube bullet, accidental, and one man was twice admitted for a wound of thigh, having been shot by a comrade who was afterwards declared to be insane. One case of suicide by gunshot wound occurred, a man shooting himself through the head while on sentry; the verdict was "temporary insanity," and no motive could be discovered. The 2 remaining deaths were due to fracture of skull, caused in one case by the man being thrown from a horse, and in the other by a fall from the ramparts.

Invaliding.—There were 122 men invalided home during the year, the equivalent ratio being 14·71 per 1,000, which is in excess of the previous year's rate by 3·33, but is below the average ratio for the preceding ten years by 5·11. In the Artillery the invaliding rate was 13·10 per 1,000, below that for 1894 by 1·25, the highest ratio in any company being 32·97 in No. 22, while in No. 26 Company invaliding was *nil*. The rate of 11·45 in the Engineers compares favourably with 18·24 in the preceding year, and in the Infantry the ratio was 14·23 per 1,000, higher than in the year before by 3·93, the battalions giving the highest rates being the 2nd Leinster Regiment with 36·05, and the 1st Cameron Highlanders with 21·28; the lowest rate, 1·27, per 1,000, occurred in the 1st Battalion Lincolnshire Regiment, next above being 7·99 in the 1st Battalion North Staffordshire Regiment. Of the men invalided, 11, or 10·88 per 1,000, were under 20 years of age, 72, or 15·39 per 1,000, were between 20 and 25 years, 28, or 13·63 per 1,000, were in their next quinquennium, and 11, or 20·03, were men of 30 years of age or more.

Malta.

These ratios are generally higher than those recorded in the last report, but their sequence is the same. With regard to service in the Command, it is found that 61 men, or 14·49 per 1,000, were in their first year, 26, or 13·28 per 1,000, were in their second, 15, or 17·40, were in their third, 13, or 15·27, in their fourth, and 7 men, or 16·99 per 1,000, had been in the Command for four years or longer. In 1894 the highest and lowest rates were in men in their first and fourth years respectively. The principal causes of invaliding to England were simple continued fever 40 cases, or 4·82 per 1,000, an increase of 2·29 on the rate in the previous year; diseases of the circulatory system 17 cases, or 2·05 per 1,000, an increase of ·53; tubercular diseases 14 cases, or 1·69 per 1,000, an increase of ·43; and nervous diseases 13 cases, or 1·56 per 1,000, an increase of ·17, including 6 cases, or ·72 per 1,000, of mental affection.

The number of men finally discharged as medically unfit for further service was 69, or 8·32 per 1,000, as compared with 5·94 in the previous year and 11·38 the decennial average ratio. The principal disabilities necessitating discharge were nervous diseases 16 cases, or 1·93 per 1,000, an increase of ·29 on the rate for 1894 (of these 9 cases, or 1·09 per 1,000, were due to mental disorders); diseases of the circulatory system 14 cases, or 1·69 per 1,000, an increase of ·17; tubercular diseases 10 cases, or 1·21 per 1,000, an increase of ·58; and simple continued fever 6 cases, or ·72 per 1,000, an increase of ·22.

Officers.—In an average strength of 240 there were 173 cases treated, 2 deaths occurred, and 12 officers were invalided home. The rate of prevalence of sickness was 720·8, that of mortality 8·33, and that of invaliding 50·00 per 1,000, as compared with 707·0, *nil*, and 74·42 respectively in the preceding year. Among the cases were 86 of simple continued fever, 21 of injuries, 7 of bronchitis, 6 of hepatic affection, and 5 each of inflammation of intestines and diarrhœa, and there was one fatal case of enteric fever at Fort Ricasoli, which could not be traced to any local sanitary defect. The remaining death was due to tubercle of lung, and the causes of invaliding were simple continued fever 10 cases, and debility and hernia 1 case each.

Women.—The average strength was 422, and there were 264 cases of illness and 11 deaths, being in the ratios of 625·6 and 26·07 per 1,000 respectively; the former is lower by 47·7 and the latter higher by 11·87 than corresponding rates in 1894. The principal causes of sickness were simple continued fever 83 cases, debility 62, digestive disorders 34, diseases of the generative system 19, and respiratory affections 16 cases. There was one case of enteric fever which terminated fatally, and there were 2 deaths each from puerperal septicæmia and tubercle of lung, and 1 from simple continued fever, hemiplegia, inflammation of heart, puerperal peritonitis, peritonitis, and puerperal convulsions respectively.

Children.—474 cases of illness and 46 deaths are recorded, the average strength being 744. The ratio of prevalence, therefore, was 637·1, and that of mortality 61·83 per 1,000, as against 619·4 and 46·23 in the preceding year. The chief causes of sickness were simple continued fever 82 cases, bronchitis 62, conjunctivitis 60, diarrhœa 39, teething 34, measles 29, and whooping cough 15 cases. The deaths were 7 from teething, 6 from inflammation of intestines, 5 from diarrhœa, 4 each from infantile convulsions and bronchitis, 3 from simple continued fever, 2 each from measles, diphtheria, debility, tubercle, and meningitis, and 1 from mumps, erysipelas, malformation, atelectasis, pneumonia, peritonitis, and asphyxia from submersion respectively.

Sanitary Conditions.—The Principal Medical Officer, Surgeon-Major-General T. Maunsell, reports that the general health of the troops during the year was not so good as in 1894, though enteric fever was much less prevalent. He remarks that 192 cases of venereal disease were imported into the Command, mostly from India. It was not possible to do much to relieve the overcrowding referred to in the last report, the new barracks at Gebel Intarfa being still under construction, and the strength of the garrison being increased by half a battalion and the troops at Gozo reduced by two companies, but, as heretofore, about half the men slept under canvas during the summer. The water supply at Gozo became deficient in July owing to continued drought, and the troops were put upon a restricted allowance; coincident with the failure of the springs bowel complaints appeared, and analysis revealed the

presence of sulphates and chlorine, but very little organic matter. The water was afterwards boiled before use with good effect, and when the rains set in about the middle of November the cases ceased to occur. The rations were good and properly cooked, and the usual gymnastic and physical training produced beneficial results. Canteens and recreation rooms were well conducted. The necessity for suitable buildings for the isolation of cases of infectious disease at the Cottonera and Valetta station hospitals is again mentioned, and it is stated that an item was to be inserted in the estimates for the provision of a hospital for soldiers' wives and children, and that a site for the building had been selected; a sanitarium for soldiers' families was opened at Citta Vecchia. *Malta.*

Certain sanitary improvements were undertaken during the year, among them being:—At Tigne Hutments a non-commissioned officers' mess hut was raised on stone pillars and enlarged. At Pembroke Camp part of the drainage system was renewed, new latrines and urinals supplied to provost establishment, concrete surface gutters provided for soldiers' blocks and floors of the same materials laid in the officers' mess kitchen and outbuildings. At Fort Pembroke the drainage was partly renewed, cesspits abolished, the surface drainage diverted and led to the sea, and the urinal and latrine paved with concrete. At Forrest station hospital a tank under the kitchen was filled up and roof water diverted, and the back yard concreted, and at Gozo the floor of the women's latrine was concreted and drained and the surface drainage in the vicinity of the officers' quarters improved. At St. James' Cavalier the lighting and ventilation of the coffee bar were improved. The dining hall at the Valetta station hospital was provided with two windows, and in the same building a larger boiler was fixed in the boiler house, and the soft stone floor of one of the wards replaced by one of concrete. Increased accommodation was provided at the infant school at Upper St. Elmo, and the ventilation of Floriana barracks generally improved. At Lower St. Elmo the defective drainage was remedied, and additional windows provided at St. Paul's married quarters. A bath was supplied to the ablution room at Fort San Lucians, and improvements in ventilation effected in the guard-rooms at Vittoriosa, Polverista, and Fort Ricasoli.

Royal Malta Artillery.

The average strength of non-commissioned officers and men of this corps was 376, the principal statistics of sickness and mortality among them being given in the following table:—

1895. Average Strength.	Admissions.	Deaths			Invalids		Average constantly Sick.	Ratio per 1,000 of Strength.				
		In the Command.	Of Invalids.	Total.	Sent Home.	Finally Discharged.		Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
376	181	3	—	3	—	3	6·36	481·4	7·98	—	7·98	16·91

The admission rate is lower than that for the previous year by 76·6, and than the corresponding average ratio for the preceding ten years by 139·6 per 1,000; the constantly sick rate is also lower in the two comparisons by 4·81 and 6·70 per 1,000 respectively. The mortality in 1894 was *nil*, the rate for the year now under report being in excess of the decennial average ratio by 6·06.

The average sick time to each soldier was 6·17 days, as compared with 7·93 in the year before, and 8·62 the average period for the preceding ten years; the average duration of each case of sickness, 12·82 days, is shorter than in the previous year by 1·39 days, and than the decennial average period by about a day.

Malta.

The principal statistics of sickness and mortality arranged according to the several groups and orders of diseases will be found in Abstract IIIA.

GENERAL DISEASES.—*Diseases dependent on Morbid Poisons.*—Simple continued fever was the cause of 21 admissions, four being cases of long duration with troublesome sequelæ, the ratio, 55·8 per 1,000, comparing favourably with 75·5 in the previous year. A single case of dysentery and 8 cases of influenza complete the list of admissions for diseases included in the 1st sub-group.

There were 6 admissions for primary syphilis and 7 for gonorrhœa, giving a total of 13 admissions for venereal affections, as against 16 in the year before. The ratio of prevalence for these diseases was 34·6 per 1,000, below the last year's rate by 8·5, and less than the average ratio for nine years by 16·7.

Debility caused 10 admissions, and there were 14 cases of rheumatism, some of the latter following attacks of fever, and there was one fatal case of tubercular disease of the lung.

LOCAL DISEASES.—Nervous diseases caused 2 admissions for neuralgia, 1 for mania, and 1 for cerebral apoplexy, the latter proving fatal. Diseases of the eye were represented by 9 admissions, seven of which were for conjunctivitis. There was one case of fatty degeneration of the heart, and among 23 admissions for respiratory affections were 19 of bronchitis and 2 of pneumonia. Diseases of the digestive system gave 21 admissions, of which 12 were for sore throat and 2 for congestion of liver. The other admissions for local diseases comprised 2 for orchitis, 1 each for relaxation of ligaments and flat foot, 5 for inflammation of the connective tissue, and 15 for skin diseases of ordinary character.

There was one case of poisoning, the hospital sergeant of the corps committing suicide by swallowing about two ounces of tincture of opium while in a state of temporary insanity.

Injuries.—31 admissions are recorded, being in the ratio of 82·4 per 1,000, as compared with 80·9 in 1894, and 128·5, the average rate for the previous nine years. The cases included 13 of wound, 8 of blisters of feet, and 7 of contusion. None were of a serious nature.

Invaliding.—The number of men discharged the service as medically unfit was 3, the same number as in the previous year, the ratio, 7·98 per 1,000, being fractionally below that recorded for 1894, but below the average rate for the preceding ten years by 6·56. The causes of invaliding were mania, flat foot, and relaxation of ligaments, one case each.

Officers.—In an average strength of 20 officers there were 13 cases of sickness treated, including 2 of influenza, 1 of simple continued fever, 2 of bronchitis, 3 of colic, 1 of piles, and 4 of cutaneous affections.

Women and Children.—The average strength of women was 42, and there were 14 attacks of illness, comprising 3 of simple continued fever, 2 of conjunctivitis, 4 of palpitation of heart, and single cases of various affections. In an average strength of 132 children, 39 cases of sickness occurred, the most important of which were 9 of conjunctivitis, 8 of teething, and 6 of simple continued fever. There was no mortality among the women or children.

Sanitary Conditions.—The Medical Officer in charge, Surgeon-Major L. Manché, M.D., reports that, although the number of men quartered at Fort Lascaris exceeded the accommodation, the actual number sleeping in barracks was much reduced by passes being granted daily to men who wished to sleep at their homes, and during the summer months one half the men slept under canvas. The drains were in good order, and the cleanliness of the barracks and vicinity was well attended to. The lighting and ventilation of the rooms were satisfactory; the water, from the Wignacourt source, was filtered before being drunk by the men. To ensure that the men spent their subsistence allowance in a proper manner, "tokens" were issued instead of money. The cholera belts, flannel shirts, and waistcoats issued are said to be a great boon to the men, as they prevent the chills to which they are liable in so changeable a climate. The canteen was well supplied with good provisions and drinks at low prices, but the size of the room is again referred to as insufficient at midday. The men of the regiment do not frequent the gymnasium regularly, but occasionally men of weak frame and squads of newly enlisted men are put through a course of gymnastics with great benefit.

IV.—ON THE HEALTH OF THE TROOPS SERVING IN THE DOMINION OF CANADA.

Sickness and Mortality.

Canada.

The average strength of the garrison was 1,347, of whom 1,324 were stationed at Halifax, N.S., and 23 at Esquimalt, British Columbia. The troops consisted of No. 1 Company, Western Division, Royal Artillery, during the whole year, No. 20 Company of the same Division arriving from Bermuda on the 9th January, and the District Establishment, Royal Artillery; the 18th and 40th Companies, Royal Engineers; the 1st Battalion The King's (Liverpool Regiment) until 7th December, relieved, on embarkation for the West Indies, by the 1st Battalion Royal Berkshire Regiment from Bermuda, and the usual detachments of the Army Service Corps, Medical Staff Corps, Ordnance Store Corps, and Garrison Staff.

The principal statistics of sickness and mortality are given in the following table:—

1895. Average Strength.	Admissions.	Deaths			Invalids		Average constantly Sick.	Ratio per 1,000 of Strength.				
		In the Command.	Of Invalids.	Total.	Sent Home.	Finally Discharged.		Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
1,347	789	8	—	8	20	13	33·66	585·7	5·94	14·85	9·65	24·99

Comparing the above with corresponding figures for the previous year, it is observed that the admission rate has increased by 125·6, the death rate by 1·78, and the ratio constantly sick by 3·79, while in comparison with similar average ratios for the preceding ten years the admission and mortality ratios are higher by 74·6 and 1·47 respectively, while the rate of constant inefficiency has declined by 1·90 per 1,000.

The average sick time to each soldier, 9·12 days, is longer than in 1894 by 1·38 days, but shorter than the decennial average period by ·69 of a day, while the average duration of each case of sickness, 15·57 days, is shorter by 1·25 and 3·63 in the two comparisons.

In Abstract XXV. will be found the more important of the health statistics of the corps which served in the Command during the year. Excluding detachments and the 1st Battalion Royal Berkshire Regiment, the highest admission rate, 688·4 per 1,000, occurred in No. 1 Company, Western Division, Royal Artillery, and the lowest, 246·7, in No. 18 Company Royal Engineers. The admission ratio in the 1st Battalion Liverpool Regiment was 664·0 per 1,000. The total mortality rate in the Artillery was 12·86, that in the Engineers 5·81, and that in the Infantry 3·68 per 1,000. The highest constantly sick rate was 30·65 per 1,000 in No. 1 Company, Western Division, R.A., and the lowest 9·09 in No. 18 Company, Royal Engineers, that in the 1st Battalion Liverpool Regiment being 29·16 per 1,000.

As to the influence of age and length of service in the Command, it is found that the admission ratio among men under 20 years of age was 766·0; that among men between 20 and 25 was 638·2; among men between 25 and 30 it was 616·4, falling to 239·8 among men of 30 years of age and upwards. In the previous year the highest ratio occurred among those between 20 and 25 years of age. Of the deaths, 4, or 5·42 per 1,000, occurred in men between 20 and 25, 3, or 7·67, in men between 25 and 30, and 1 man, or 5·85

Canada.

1,000, was over 30 years of age. For men of less than one year's service in the Command the admission rate was 709·9 per 1000; for those in their second year 554·2, for those in their third year 635·0, and for those who had been in Canada three years or longer it was 110·2. The highest ratio in 1894 was also in men of less than one year's service. Among men in their first year there were 5 deaths, or 13·81 per 1,000, 2 men, or 6·02 per 1,000, died when in their second year, and 1 man, or 1·90 per 1,000, was in his third year of service in the command.

In Abstract IV. will be found the sickness, mortality, and invaliding arranged according to the different groups and orders of diseases.

GENERAL DISEASES.—*Diseases dependent upon Morbid Poisons.*—There was no case of *small-pox* during the year, but *other eruptive fevers* were represented by 7 cases of scarlet fever and 1 of measles. There was one death from scarlet fever. *Enteric fever* caused the admission of one man two days after arrival from Bermuda, where the disease was prevalent among the troops; the case proved fatal. There were 2 admissions each for *simple continued fever* and *influenza*, and one for *dysentery*, making a total of 14 admissions in the 1st sub-group of diseases, equal to a ratio of 10·4 per 1,000, as compared with 6·2 in the previous year and with 13·0, the average ratio for the preceding nine years.

Malarial Fevers.—Under this heading 2 cases of ague are returned.

Septic Diseases.—There were 7 admissions for erysipelas of a simple type.

Venereal Diseases.—There were 37 admissions for *primary syphilis*, being in the ratio of 27·5 per 1,000, below the last year's rate by 5·1, but fractionally above the average. If to the above be added the sickness from simple venereal ulcer—for which there were 21 admissions and a constant sickness of ·71—the admission rate for primary venereal sores equalled 43·1 per 1,000, higher than in 1894 by 2·2, and above the average ratio for the preceding nine years by 8·0. *Secondary Syphilis*, with 11 admissions, gave a ratio of 8·1 per 1,000, below that for the year before by 7·8, and below the average by 13·0. *Gonorrhœa* was the cause of 120 admissions, the ratio, 89·1 per 1,000, being in excess of that for the last year by 49·6, and above the average rate by 31·1. Taking all these forms of venereal disease together it is found that the total admission ratio equalled 140·3 per 1,000, above that for 1894 by 44·0, and greater than the average rate for the preceding nine years by 26·1; the total constant inefficiency from venereal diseases amounted to 6·33 per 1,000, higher in the former comparison by ·97, but ·73 below the average.

There were 7 admissions recorded under the heading of *alcoholism* and 5 under that of *debility, &c.* No case of delirium tremens occurred.

Rheumatism.—There were 46 admissions, including 1 for rheumatic fever, the ratio per 1,000 being 34·1, above the rate for the previous year by 15·4 and in excess of the average by 6·1. *Tubercular diseases* accounted for 3 admissions and 1 death, all due to lung affection, the ratio of prevalence, 2·2 per 1,000, being nearly the same as in the last year and about the average. *Other diseases* of Group D comprised 9 cases of non-malignant new growth, 5 of anæmia, and 2 of purpura.

LOCAL DISEASES.—*Diseases of the Nervous System* gave rise to 19 admissions, or a ratio of 14·1 per 1,000, higher than that for 1894 by ·9 and than the average rate for nine years by 3·6. There were 6 cases of paralysis, 8 of vertigo, 2 each of neuralgia and epilepsy, and 1 case of neuritis; no instance of mental disease is recorded.

Diseases of the Eye.—Sixteen admissions are returned. The ratio, 11·9 per 1,000, is in excess of that for the previous year and the average rate by 8·4 and 3·8 respectively. *Diseases of other organs of special senses* caused 13 admissions, equal to 9·7 per 1,000, as compared with 3·5, the rate for the year before, and 6·0 the average.

Diseases of the Circulatory System, with 12 admissions, show a ratio of 8·9 per 1,000, above the previous year's rate by 3·4, but below the average by ·6. The cases included 3 of palpitation, 3 of dilatation, and 2 of valvular disease of the heart, and there was one death from fatty degeneration of heart.

For *Diseases of the Respiratory System* there were 25 admissions and 1 death. The admission ratio, 18·6 per 1,000, is below the previous year's rate by 25·0, and less than the nine years' average rate by 19·6. Bronchitis

accounted for 21 of the cases, and there were 2 of pneumonia (one fatal) and 2 of pleurisy. *Canada.*

Diseases of the Digestive System, with 139 admissions, gave a ratio of 103·2 per 1,000, greater than the preceding year's and the average rates by 24·2 and 30·5 respectively. Various forms of throat affection caused 88 admissions, and there were 17 for dyspepsia, 7 for colic, 6 for diarrhœa, and 5 each for inflammation of the stomach and hernia.

Diseases of the Lymphatic and Glandular System were the cause of 43 admissions, or a ratio of 32·0 per 1,000, which is higher than that for the year before by 15·4 and than the average rate by 18·0. Most of the cases were due to inflammation or suppuration of the lymphatic glands.

Urinary Disorders were represented by 1 case of acute nephritis and 1 of incontinence of urine, while *diseases of the generative system* caused 38 admissions, the ratio per 1,000 being 28·2, higher than in 1894 by 8·1 and than the average rate for the preceding nine years by 3·0. Omitting the 21 cases of simple venereal ulcer referred to under the heading of veneral diseases, the principal cause of sickness was orchitis, which furnished 11 admissions.

Diseases of the Organs of Locomotion show 12 admissions, or a ratio of 8·9 per 1,000, as compared with 7·6 in the last year and 8·7 the average rate. Ten of the cases were of inflammation of joint.

Diseases of the Connective Tissue.—36 admissions are shown, 24 being for abscess and 12 for inflammation; the ratio, 26·7 per 1,000, is below that for the year preceding by 2·4, but above the average rate by 5·7.

Diseases of the Skin, with 55 cases, gave a ratio of 40·8 per 1,000, above the rate for 1894 and the nine years' average rate by 15·9 and 7·2 respectively. Ulcers were the cause of one-third of the cases.

There was one death returned under the head of *Poisons*, a company sergeant-major of the Royal Engineers committing suicide by taking cyanide of potassium. The verdict was to the effect that he was temporarily insane at the time; it is stated that financial difficulties may have supplied the motive.

Injuries.—Under the heading of general injuries one admission for exhaustion is recorded, and two men were drowned through the upsetting of a pleasure boat. There were 109 cases of local injury, including 37 of wounds, 27 of sprain, 23 of contusions, and 10 of blisters of feet. There was one case of frost bite. The ratio of prevalence for injuries, 81·6 per 1,000, is below that in the previous year by 5·7, but above the average rate by 5·4.

Invaliding.—20 men were invalided to England during the year, the ratio per 1,000, 14·85, being higher than in 1894 by 3·76, but below the decennial average rate by ·75. Including a man discharged locally, the ratio of invaliding in the Artillery was 19·29 per 1,000, that in the Engineers being *nil;* in the Infantry a rate of 17·18 is recorded, and one of 20·41 in the Staff and Departments. As to the age of the men invalided, 11, or 14·90 per 1,000, were between 20 and 25 years; 7, or 17·90 per 1,000, between 25 and 30 years; and 3, or 17·54 per 1,000, were over that age. No invaliding occurred among men under 20 years of age. With regard to service in the Command, 5 men, or 13·81 per 1,000, were in their first year; 2 men, or 6·02, were in their second year; 10, or 19·01 per 1,000, were in their third year; and 4, or 31·50 per 1,000, had been more than three years in the Command. The causes of invaliding were rheumatism 4 cases, retinitis 3, tubercle of lung, paralysis, aural disease, and valvular disease of the heart 2 each, and malformation, debility, purpura, epilepsy, hypertrophy of lymphatic glands, and synovitis one case respectively.

Including the man who was discharged in the Command, 13 men were discharged the service as medically unfit; the ratio per 1,000 was 9·65, fractionally below the last year's rate and less than the average ratio for the preceding ten years by 4·56. Of those discharged at home 2 men were invalided on account of tubercle of lung, paralysis, ophthalmic affections, and valvular disease of heart respectively, and one man for each of the following diseases:—epilepsy, mania, perforation of membranum tympanum, and synovitis.

Officers.—In an average strength of 64 officers there were 26 cases of sickness, the ratio per 1,000, 406·2, being below that for the previous year by 254·8. There was no death. The admissions included 5 for sore throat, 4 for influenza, and 4 for sprain, and there was 1 case of enteric fever, contracted at

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Bermuda prior to arrival in Canada. One officer was invalided for inflammation of the stomach.

Women.—The average strength was 131 and the number of attacks 16, none of the cases being of especial note. The ratio of prevalence of sickness was 122·1 per 1,000 as compared with 132·2 in the year before. One woman died from eclampsia.

Children.—There were 108 cases of illness and 5 deaths in an average strength of 242; the ratios of prevalence and mortality, therefore, were 446·3 and 20·66 per 1,000, both higher than in the year before, by 211·0 and 1·05 respectively. Among the cases were 57 of measles, 7 each of bronchitis and sore throat, 5 of diarrhœa, 4 of scarlet fever, 4 of whooping cough, and 1 of diphtheria. The deaths were due to whooping cough, diphtheria, infantile convulsions, bronchitis, and diarrhœa one each.

Sanitary Conditions.—In the report of the Principal Medical Officer, Surgeon-Colonel T. F. O'Dwyer, M.D., it is stated that the health of the troops has not been quite up to the average of recent years, though comparing favourably with the health of those at stations at home and elsewhere, but considering the almost constant presence of zymotic disease among the surrounding civil population and the medical history of the Halifax garrison in former years, it would not be well to permit weakness in the sanitary arrangements of the quarters. He, therefore, recommends that the surface wells be protected from pollution, that the ventilation of certain barrack rooms be improved, and that more suitable ashbins be provided. It is considered desirable that a constant supply of hot water be laid on to the ablution rooms; this has been done to a certain extent under regimental arrangements; and that hot plates be provided to those cook-houses in which they are not already fitted. With reference to the lighting of the barracks and hospital by electricity instead of by oil or gas, it is stated that certain tests and inquiries were being made with a view to determining the practicability of the scheme. There was no overcrowding, and the arrangements for warming were fairly satisfactory. The dry-earth system of conservancy, which is considered the best for a climate where water is exposed to such intense cold, was well looked after, and the drainage was, as a whole, satisfactory. The rations were of good quality and well cooked. The water supply to the barracks at Halifax was from the city source, good and abundant, and that to the harbour forts, of which complaint has been made in previous reports, was being improved by the construction of reserve tanks. Among the sanitary improvements effected during the year may be mentioned the provision of a water supply to the gymnasium and the Pavilion married quarters, sinks being also fixed at the latter. A heating apparatus was supplied to the ablution room at the Citadel, where also the old wooden benches were partly replaced by slate slabs. A portion of the west block of the South Barracks was rebuilt, two rooms were made into one, and the basement improved at the garrison school, R.A. Park, and an additional class-room provided at the Pavilion infant school. Two baths were added to the ablutionary arrangements at Wellington Barracks, and the old pan closets were replaced by new pattern Tower closets. A married quarter with earth closet was added to the accommodation at Cambridge Battery, and a new well for drinking water sunk at George's Island, a pump being fitted. At that island a 6-inch stoneware drain was laid from the ablution rooms to the shore. The effects of gymnastic training are, as usual, favourably reported upon. The medical officer in charge of the station hospital is of opinion that it would be of advantage to have the walls of the wards painted, instead of limewashed as at present.

At Victoria, B.C., where an officer of the Royal Navy is in medical charge, the accommodation for the detachment was sufficient. The sick were treated in the Royal Naval Hospital at Esquimalt, but a small hospital with two beds is available for the treatment of slight cases at Work Point Barracks, where the troops are stationed. A sergeants' mess and a skittle alley were built during the year, and a recreation room nearly completed. A kitchen was added to each married quarter and a washhouse provided.

V.—ON THE HEALTH OF THE TROOPS SERVING IN BERMUDA.

Sickness and Mortality.

Bermuda. The average strength of warrant officers, non-commissioned officers and men was 1,447. The force comprised the 3rd and 19th Companies, Western Division, Royal Artillery, the 27th and 36th Companies, Royal Engineers, the 1st Battalion Royal Berkshire Regiment, relieved at the end of November by the 2nd Battalion Leinster Regiment, detachments Army Service Corps, Medical Staff Corps, Ordnance Store Corps, and Garrison Staff.

In the following table are given the principal statistics of sickness and mortality among the troops during the year:—

1895. Average Strength.	Admissions.	Deaths			Invalids		Average constantly Sick.	Ratio per 1,000 of Strength.				
		In the Command.	Of Invalids.	Total.	Sent Home.	Finally Discharged.		Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
1,44	984	25	—	25	15	6	56·56	690·0	17·28	10·36	4·15	39·09

Compared with corresponding figures for 1894; the admission ratio has increased by 199·2, the death rate by 8·77, and the rate of constant inefficiency by 13·57 per 1,000; while in comparison with the average ratios for the previous decennium, increase of 124·3, 7·04, and 10·33 respectively is observed. The average sick time to each soldier, 14·27 days, is longer than the corresponding period in the preceding year by 4·96, and than the average period for the previous ten years by 3·78 days; the average duration of each case of sickness, 20·98 days, is also longer in the two comparisons by 1·61 and 2·09 respectively.

The sickness and mortality among the different corps which served in the Command during the year are exhibited in Abstract XXV. Omitting the 2nd Battalion Leinster Regiment, which was only one month in the Command, and detachments of small average strength, the highest admission ratios were 1000·0 and 681·5 respectively in the 19th and 3rd Companies Western Division, Royal Artillery, both with headquarters at St. George's, and detachments at Prospect and Ireland Island, next below being 681·4 in the 1st Battalion Royal Berkshire Regiment at Prospect, with detachments at St. George's, Boaz, and Ireland Island until departure for Canada in December. The lowest admission ratios occurred in the Royal Engineers, viz.:—315·1 in No. 27 Company at St. George's, and 451·6 in No. 36 Company at Prospect, both having detachments at Boaz. Of the deaths, 16, or 19·16 per 1,000, occurred in the 1st Battalion Royal Berkshire Regiment, 5, or 33·78 per 1,000, in No. 19 Company, and 2, or 12·74 per 1,000, in No. 3 Company, Western Division, Royal Artillery, 1, or 14·29 per 1,000, in the 2nd Battalion Leinster Regiment, and 1, or 32·26 per 1,000, in the Ordnance Store Corps. The highest ratio of constant inefficiency was 61·35 per 1,000 in No. 19 Company, next below being 42·23 in No. 3 Company, Western Division, Royal Artillery; the lowest was 10·43 in No. 36 Company, Royal Engineers.

The sickness and mortality according to the age of the men have been calculated, and it is found that the admission rate among men under 20 years of age was 1441·2, falling to 773·6 among men between 20 and 25, and still further to 587·2 among men between 25 and 30, the lowest ratio, 379·9 per 1,000, occurring among men of 30 years of age and upwards. There was no mortality among men under 20 years of age, but there were 12 deaths, equal

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to 15·71 per 1,000, among those between 20 and 25; 9, or 19·15 per 1,000, among men between 25 and 30 years; and 4, or 22·35 per 1,000, among older men, the sequence of both admission and mortality rates being the same as in 1894, when, however, all the ratios were lower than in the year under report. As to length of service in the Command, it has been calculated that the admission rate for men with less than one year's service was 960·2, that among men in their second year being 568·5; among men in their third year and those with more than three years' service the ratios were 485·8 and 455·9 per 1,000 respectively. In the previous year the highest admission ratio also occurred among men in their first year, but the lowest was among men in their third year. There were 15 deaths, or 28·41 per 1,000, among the recent arrivals, 4, or 10·15 per 1,000, among those in their second year, and 6, or 13·13, among men in their third year. In 1894 mortality was almost evenly divided between men in their first and second years' of service.

The admissions, deaths, &c. according to the different groups and orders of diseases will be found in Abstract V.

GENERAL DISEASES.—*Diseases dependent on Morbid Poisons.—Enteric fever* caused 107 admissions and 20 deaths, equal to ratios of 73·9 and 13·82 per 1,000, higher than in the previous year by 58·3 and 10·28, and than the average rates for the previous nine years by 40·9 and 8·09 per 1,000 respectively. The per-centage of mortality to attack was 18·7 as compared with 22·7 in 1894, the average per-centage for nine years being 17·4. Of the men attacked, 3, or 88·2 per 1,000, were under 20 years of age, 73, or 95·5 per 1,000, were between 20 and 25 years, 27, or 57·4 per 1,000, were in their next quinquennium, and 4, or 22·3 per 1,000, were 30 years of age or more. The deaths were *nil* among men under 20, 9, or 11·78 per 1,000, among those between 20 and 25, 8, or 17·02 per 1,000, among men between 25 and 30, and 3, or 16·76 per 1,000, among men of over 30 years. As to service in the Command, 47 of the men admitted, or 89·0 per 1,000, were in their first year, 27, or 68·5, were in their second year, 32 men, or 70·0 per 1,000, were in their third year, and 1 man, or 14·7 per 1,000, had been upwards of three years in residence. Mortality was at the rate of 20·83 per 1,000 among those in their first year, dependent on 11 deaths; 4 deaths, or 10·15 per 1,000, occurred among men in their second year, and 5 deaths, or 10·94 per 1,000, among those in their third year.

The first case occurred in January at St. George's in a gunner of the Royal Artillery, but an outbreak commenced in June at Warwick Camp, and other cases occurring in July the camp was closed on the 27th of that month, but it would appear that men who had been undergoing musketry training at that place carried the disease to all the stations in the Command.

At the Station Hospital at Prospect 55 cases were treated; 8 in June with one death, 14 with 2 deaths in July, 5, two fatal, in August, 9 with no death in September, 4 with 2 deaths in October, 9 in November, and 6 in December, no death from enteric fever occurring at that station during the last two months of the year. The medical officer in charge reports that the earlier cases were of a severe type, and that 20 of those which occurred in June, July, and August were directly associated with Warwick Camp, the disease being introduced by men who contracted the disease at that place, and, returning on the completion of their musketry course to Prospect, infected the latrines of the Berkshire Regiment with enteric dejecta prior to admission to hospital. Of the other 7 cases occurring during those months, 3 were traced to the infected latrines, one to drinking contaminated water from a stable tank, one case occurred in a man of the Medical Staff Corps contracted during the execution of his duties, while in two cases the origin was doubtful. From July 24th to September 7th no case was admitted which could be said to originate at Prospect, and it was hoped that the measures taken to eliminate the disease from the latrines had been successful, when unfortunately they became re-infected by the dejecta of a man of the Royal Berkshire Regiment, who contracted enteric fever by drinking water from an old disused well in the town of Hamilton, and who used the latrines until his admission into hospital. Excepting two cases in men who had been in attendance upon the sick from the disease, and one in which the origin could not be traced, it is stated that the majority of the subsequent cases were caused by the use of the latrines in

question. There were 47 cases in the 1st Battalion Royal Berkshire Regiment, 4 in the 2nd Battalion Leinster Regiment, 3 in the Medical Staff Corps, and 1 in the Royal Artillery, but it is remarked that out of a strength of 93, no man of the Royal Engineers was attacked. *Bermuda.*

At the Station Hospital, St. George's, there were 46 admissions and 13 deaths, occurring as follows:—January, one case and three deaths, June, 7 cases, one fatal, July, 8 with 1 death, August, 9 with 4 deaths, September, 7 cases no death, October, 3 cases with 2 deaths, November, 3 cases with 1 death, and 8 cases, one fatal, in December. The disease appeared in June, a few days after the return of a company from Warwick Camp, and in consequence of the drains being out of repair, the work of re-construction being suspended during the hot weather, the germs of the disease appear to have taken possession of them, and although every sanitary precaution was taken, the eroded state of the iron pipes allowed deposits of night soil to infiltrate under the latrines, and it was found difficult to keep the disease in check.

At Watford, where 6 cases were treated, five were admitted from Warwick Camp, while the other was also traced to influences outside the station; no death occurred, and the spread of the disease was effectually prevented.

Simple Continued Fever was the cause of 69 admissions, or a ratio of 47·7 per 1,000, as compared with 11·4 in 1894, and 22·9, the average rate of nine years; 49 cases occurred at Prospect, 16 at St. George's, and 4 at Watford.

There were 3 admissions for *dysentery*, the ratio, 2·1 per 1,000, being lower than in the previous year by 1·4, but fractionally above the average rate.

Malarial Fevers, which were entirely absent in the preceding year, gave 15 admissions, all due to ague in men who had previously been stationed in the West Indies. The ratio, 10·4 per 1,000, is much above the average.

Venereal Diseases.—For *primary syphilis* there were 18 admissions, the ratio per 1,000 being 12·4, as compared with 12·0 in 1894. Including simple venereal ulcer, for which there was only one admission with ·28 constantly sick, the admission ratio for primary venereal sores was 13·1 per 1,000, below the previous year's rate by 6·0, and 7·0 less than the average rate of the preceding nine years. There were 26 admissions for *secondary syphilis*, or a rate of 18·0 per 1,000, which is higher than in 1894 by 12·3, but only fractionally above the average. *Gonorrhœa*, with 43 cases, gave an admission ratio of 29·7 per 1,000, higher in the two comparisons by 5·6 and 9·7 respectively. Taking all forms of venereal disease together, the admission rate equalled 60·8 per 1,000, higher than in the previous year by 11·9, and 3·3 above the average rate for nine years. The total constant inefficiency from these diseases was equal to 5·65 per 1,000, above the corresponding ratio in the year before by 1·94, and in excess of the average rate by 1·22.

Under *Parasitic Diseases* there was only one admission, a case of tænia solium, and there were 7 admissions for *alcoholism*, including one for delirium tremens.

Debility, with 19 admissions, gave a ratio of 13·1 per 1,000, in excess of the last year's rate by 8·8 and above the nine years' average rate by 2·8.

Rheumatism caused 43 admissions, equal to 29·7 per 1,000, as compared with 11·4 in the previous year and 18·2, the average rate. There were 2 cases of rheumatic fever included.

There were 2 admissions for *tubercular diseases*, both instances of lung affection; the ratio, 1·4 per 1,000, is much about the average, but there was no case in 1894.

Other diseases of Group D. comprised 7 cases of non-malignant new growth and 1 of anæmia.

Local Diseases.—*Diseases of the Nervous System* were the cause of 19 admissions and 2 deaths, including 3 cases of mental disease. The admission rate, 13·1 per 1,000, is higher than that for the preceding year by 4·6, and than the average rate for nine years by 5·0; the ratio of mortality, 1·38, is fractionally below the last year's rate, but above the average by ·81. There was one case of myelitis and one of abscess of brain, both fatal, 10 cases of neuralgia, 2 of paralysis, and one case each of vertigo, epilepsy, mania, melancholia, and dementia.

Diseases of the Eye.—There were 11 admissions under this head, the ratio, 7·6 per 1,000, being below that for the year before by 1·6 and less than the

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average rate by 4·8. Of the cases, 10 were returned as conjunctivitis and 1 as blepharitis.

Diseases of other Organs of Special Senses were represented by 12 cases of inflammation of the external meatus; the equivalent ratio was 8·3 per 1,000, as compared with 12·8 in 1894 and an average rate of 9·4.

There were 3 admissions under *diseases of the circulatory system*, or 2·1 per 1,000, the ratio being identical with that for the previous year, but below the average of nine years by 7·2. Two of the admissions were for valvular disease of the heart, one proving fatal, and there was one case of palpitation.

Diseases of the Respiratory System.—36 cases and 2 deaths are returned, equal to ratios of 24·9 and 1·38 per 1,000, the former being higher than in the preceding year by 9·3, but lower than the average ratio by 1·0; the mortality rate is higher in the two comparisons by ·67 and ·81 respectively. There were 31 cases of bronchitis, 2 (both fatal) of pneumonia, 2 of pleurisy, and 1 of laryngitis.

Under the heading of *diseases of the digestive system* 221 admissions are recorded, or a ratio of 152·7 per 1,000, which is higher than the previous year's rate by 57·0 and than the nine years' average rate by 50·0. The cases included 36 of affections of the mouth and throat, 98 of dyspepsia, 49 of diarrhœa, 24 of hepatic disorders, 9 of colic, 4 of piles, and 1 of hernia.

Diseases of the Lymphatic and Glandular System gave 13 admissions, 12 for inflammation and 1 for suppuration of the lymphatic glands, the ratio, 9·0 per 1,000, being below the corresponding rate in 1894 by ·9, and less than the average rate by 3·0.

Diseases of the Urinary System, with 3 admissions, gave a ratio of 2·1 per 1,000, exactly the same as the last year's rate and about the average. Two were cases of nephritis, and one man was treated for retention of urine.

Diseases of the Generative System.—There were 15 admissions, or a ratio of 10·4 per 1,000, which is lower than in the preceding year by 5·9, and below the average rate of nine years by 7·1. Balanitis 5 cases, and hydrocele and orchitis 4 cases each, were the chief causes of admission.

There were 9 admissions recorded under *diseases of the organs of locomotion*, all cases of synovitis; the ratio, 6·2 per 1,000, is 4·8 more than that for 1894, but below the average by 2·8.

Diseases of the Connective Tissue were the cause of 64 admissions, equal to 44·2 per 1,000, as compared with 28·4 in the previous year and 27·9 the average rate. Of the cases 33 were due to inflammation and 31 to abscess.

Diseases of the Skin.—99 admissions are recorded, being in the ratio of 68·4 per 1,000, in excess of that for the year before by 8·1, and above the nine years' average rate by 14·1. Ulcers, boils, and itch were the chief causes of admission.

Under *injuries* 114 cases are returned, the equivalent ratio being 78·8 per 1,000, lower than that for the previous year by 26·9, and below the average rate by 31·1. The majority of the admissions were due to wounds and contusions, there was one case of heatstroke, which terminated favourably.

Invaliding.—There were 15 men invalided home during the year, or a ratio of 10·36 per 1,000, which is higher than that for the preceding year by 5·40, but below the average rate for the previous ten years by 3·87. In the Royal Artillery 5 men were discharged, but of these three belonged to companies which had left the Command; the ratio for the companies serving during the year was 6·55 per 1,000. The invaliding rate for the Royal Engineers was *nil*, but it was found necessary to send home 7 men, or 8·38 per 1,000, of the 1st Battalion Royal Berkshire Regiment. There were also 2 men of the Ordnance Store Corps and 1 man of the Medical Staff Corps invalided. With regard to age, 1 man, or 29·41 per 1,000, was under 20 years of age as compared with *nil* in 1894, 6 men, or 7·85 per 1,000, were between 20 and 25, the previous year's rate being 4·07; 2 men, or 4·25 per 1,000, were between 25 and 30, as against 4·37, and 6, or 33·52 per 1,000, were men of 30 years of age and upwards, as compared with 17·54. As to service in the Command, 5 men, or 9·47 per 1,000, had less than one year, 6 men, or 15·23 per 1,000, were in their second year, 3 men, or 6·56 per 1,000, were in their third year, and 1 man, or 14·71 per 1,000, had been more than three years in the Command. In 1894 the highest invaliding rate occurred among men in their third year, and the lowest among those in their second

year. The causes of invaliding were, nervous diseases 6 cases, or 4·14 per 1,000 (including 2 cases of mental affection), respiratory affections 2 cases, or 1·38 per 1,000, and secondary syphilis, debility, tubercle of lung, valvular disease of heart, hernia, urinary fistula, and necrosis of clavicle one case, or ·69 per 1,000 respectively. *Bermuda.*

The number of men discharged the service as medically unfit was 6, or a ratio of 4·15 per 1,000, as compared with 4·26 in the previous year and 9·80 the decennial average rate. The causes of discharge were nervous diseases 4 cases, including 2 of mental affection, and one case each of circulatory and respiratory disorders.

Officers.—In an average strength of 59 there were 21 cases of sickness; the ratio per 1,000 was 355·9 as compared with 295·1 in the year before. Among the cases treated were 4 of diarrhœa, 2 of simple continued fever, and 1 of enteric fever. No death occurred, but 2 officers were invalided home, one for debility and one for melancholia.

Women.—The average strength was 109, and the admissions numbered 93, the ratio, 853·2 per 1,000, being higher than in 1894 by 142·1. Debility and affections of the digestive and generative systems were the chief causes of sickness, and there were 3 cases of enteric fever. There was no death.

Children.—There were 204 cases of sickness and 5 deaths, the average strength being 214. The admission ratio was 953·3 per 1,000, in excess of the last year's rate by 200·1; the mortality rate, 23·36 per 1,000, was lower by 1·96 than in that year. The cases included 44 of diarrhœa, 32 of bronchitis, 15 of measles, 14 of debility, 12 of teething, and 8 of enteric fever.

Sanitary Conditions.—The Senior Medical Officer, Brigade-Surgeon-Lieutant-Colonel H. Comerford, M.D., states that the general sanitary state of Prospect Camp during the year was good, the dry-earth system working well under constant supervision. The water tanks and their collecting areas received much attention, and any that were considered liable to soakage were disused until their contents were analysed. The relaying of the drains was still proceeding, and only surface water and urine were carried by them. Three waterclosets were in use as an experiment, the sewage from them, both solid and liquid, being treated with sulphate of iron (Conder's system) and afterwards filtered through alternate beds of broken stone and earth; the fluid effluent was examined by the War Department chemist at Woolwich and favourably reported upon. Agars Island and Ireland Island were in a good sanitary state, but at Watford and Boaz the drainage was found to be defective, and was being reconstructed. Enteric fever appeared early in June at Warwick Camp, being conveyed thence to other stations in the Command, at Watford and Prospect the progress of the disease was checked, but at St. George's, where the drains were defective, it continued until the end of the year, the drainage works being suspended owing to the great heat, it being feared that the number of cases might be increased by opening the ground further at that period; the work was in rapid progress, and, it was hoped, would be finished before the winter was over. The buildings at St. George's were in a good sanitary state. The supplies are well reported upon, but it is stated that white or khaki clothing would be very beneficial to the troops during the summer. Among other improvements carried out during the year may be mentioned the following:—The old brick sewer at Ireland Island replaced by glazed earthenware pipes, with junction pits and arrangements for ventilation and flushing, the urinals and wash-houses being connected with the main drain. At the Clarence Barracks, Boaz, an insanitary state of the washhouses was remedied, and at the Station Hospital, Watford, improvements in the flushing and ventilation of the main drain were made, and a portion of the system entirely relaid. At Whale Bay Battery a cookhouse was erected, and an earth closet built in the keep at Ireland Island. At St. George's, where also several minor matters were attended to, the larger portion of the drainage of No. 3 system, comprising that of the Staff block and B, C, and D blocks was reconstructed, as was that belonging to the station hospital, other portions of the drainage system being also in process of repair.

VI.—ON THE HEALTH OF THE TROOPS SERVING IN THE WEST INDIES.

Sickness and Mortality.

I.—European Troops.

West Indies. The average strength of the troops serving in the West Indies during the year was 1,287. Of these, 739 were stationed in the Barbados Command, and 548 in Jamaica. The force in the Barbados Command consisted of the 23rd Company, Western Division, and the District Establishment, Royal Artillery, and detachments of the Royal Engineers, Army Service Corps, Medical Staff Corps, Army Pay Corps, and Garrison Staff throughout the year; the headquarters and four companies of the 1st Battalion Leicestershire Regiment were also present until 23rd December, when they left for South Africa on relief by the 1st Battalion Liverpool Regiment from Canada. The stations occupied were Barbados and St. Lucia, the average strengths being 503 and 236 respectively. In Jamaica the force comprised the 14th Company, Western Division, Royal Artillery, a wing of the 1st Battalion Leicestershire Regiment (relieved in December by a similar force of the 1st Battalion Liverpool Regiment), and detachments of the Royal Engineers, Army Service Corps, Medical Staff Corps, &c., the troops being distributed as follows:—Newcastle 302, Port Royal 123, and Up Park Camp 120.

The more important statistics of sickness and mortality among the troops in each division of the Command, as well as of those in the West Indies taken as a whole, are shown in the subjoined table:—

1895.	Average Strength.	Admissions.	Deaths			Invalids	
			In the Command.	Of Invalids.	Total.	Sent Home.	Finally Discharged.
Barbados Command - -	739	992	11	—	11	18	12
Jamaica - - - -	548	382	3	—	3	4	2
West Indies - - -	1,287	1,374	14	—	14	22	14

(*continued.*)

1895.	Average constantly Sick.	Ratio per 1,000 of Strength.				
		Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
Barbados Command - -	54·82	1342·3	14·88	24·36	16·24	74·16
Jamaica - - - -	25·58	697·1	5·47	7·30	3·65	46·68
West Indies - - -	80·40	1067·6	10·88	17·09	10·88	62·47

Comparing the statistics of sickness and mortality in the Barbados Command with those given in a similar table in the last report, an increase of ·4 is observed in the admission rate, and one of 7·14 per 1,000 in the mortality rate, but a decline of ·75 has occurred in the ratio of constant inefficiency through sickness. The average sick time to each soldier, 27·07 days, and the average duration of each case of sickness, 20·17 days, were both shorter than the corresponding periods in the previous year by about a quarter of a day. *West Indies.*

The ratio of admission in Jamaica has declined by as much as 294·0 per 1,000, and the death rate is lower by 1·65, but there is an increase of 2·41 in the constantly sick rate, as compared with the figures for the year before. The average sick time to each soldier was 17·04 days, longer by ·88 of a day, and the average duration of each case of sickness 24·44 days, longer by 8·14 than in 1894.

Taking all the European troops in the West Indies together, the admission rate has declined by 126·9, but the death rate has increased by 3·40 and the constantly sick rate by ·43, as compared with corresponding ratios in the previous year; in comparison with similar average ratios for the preceding ten years, the rate of admission shows a decline of 38·1, while the mortality and constantly sick rates have increased by 1·96 and 2·42 per 1,000 respectively. The average sick time to each soldier, 22·80 days, was fractionally longer than the corresponding period in the year before, and than the decennial average period by ·88 of a day; the average duration of each case of sickness, 21·36 days, was also longer in both comparisons, by 2·40 and 1·53 days respectively.

In Abstract XXV. is a table showing the principal statistics of sickness and mortality of the various corps which served in the West Indies during the year. The admission, death, and constantly sick rates in No. 23 Company, Western Division, Royal Artillery, at Barbados and St. Lucia were 1405·0, 41·32, and 94·55 per 1,000, and in No. 14 Company at Jamaica, 902·4, 16·26, and 54·88 per 1,000 respectively, 5 deaths occurring in the former and 2 in the latter; there was also a death in the District Establishment at St. Lucia. In that portion of the 1st Battalion Leicestershire Regiment stationed at Barbados and St. Lucia the admission rate was 1402·6, the death rate 7·42, and the ratio of constant inefficiency 80·39, per 1,000, similar ratios in the wing at Jamaica being 661·4, *nil*, and 46·64.

As to the influence of age on the sickness and mortality, it is found that the admission rate among men under 20 years of age was 2000·0 per 1,000, dependent, however, upon a small strength; taking the period from 20 to 25 years of age, which gave the largest strength, the ratio was 1274·2 per 1,000, as compared with 1355·3 in 1894; among men between 25 and 30 years an admission rate of 910·8 per 1,000 is observed, as against 1099·5 in the year before, and among those of 30 years of age and upwards the rate was 370·6, compared with 621·9 in the preceding year. Mortality was *nil* among men under 20 years of age, at the rate of 12·98 among those between 20 and 25, 2·35 among men in their next quinquennium, and 27·97 among men of 30 years of age and upwards With regard to length of service in the West Indies the ratio of admission was 1152·0 among men in their first year, falling to 963·5 among those in their second year; among men in their third year it was 1123·6 per 1,000, falling again to 1035·7 among men who had been three years or longer in residence. In the preceding year the highest admission ratio was also highest among men in their first year, but fell steadily through the succeeding periods of service, the lowest rate occurring in men of three years or over. The mortality rate among men in their first year of service was 18·24 per 1,000, that among men in their second year being 4·06; a rate of 11·44 per 1,000 occurred among those in their third year, and one of 35·71 among men of more than three years of service.

In Abstract VI. will be found the more important of the statistics of sickness and mortality arranged according to the different groups and orders of diseases.

General Diseases.—*Diseases dependent on Morbid Poisons.—Enteric Fever.*—There were 6 admissions and 3 deaths, the equivalent ratios being 4·7 and 2·33 per 1,000 respectively, as compared with 9·7 and 4·49 in the previous year, and with 10·6 and 2·81, the average ratios for the preceding nine years. The per-centage of mortality to attack was 50·0, as against 46·1 in 1894, and

West Indies. 26·6, the average per-centage of nine years. Of the cases, 3, or 4·1 per 1,000, occurred in the Barbados Command, as compared with a rate of 7·7 in the year before, the mortality ratio being 2·71, dependent on 2 deaths, as against 4 deaths, or 5·16 per 1,000, in the last year. All were admitted at Barbados, and careful investigation failed to reveal any cause for the attacks. Of the 3 cases with 1 death at Jamaica, two occurred at Up Park Camp, one proving fatal, and the third was admitted from the married quarters at Port Royal; it is thought that those at Up Park Camp may possibly have originated in an impure water supply, that at Port Royal being attributed to the consumption of tinned herrings. The admission and mortality rates at Jamaica were 5·5 and 1·82 per 1 000, as compared with 12·5 and 3·56 in 1894.

Simple Continued Fever.—There were 49 admissions, of which 36 occurred in the Barbados Command and 13 at Jamaica, the ratio, 38·1 per 1,000, being less than that for the previous year by as much as 184·8, and below the nine years' average by 71·4. The number of cases at St. Lucia was 12.

Yellow Fever caused 11 admissions and 5 deaths, equal to ratios of 8·5 and 3·88 per 1,000 respectively, all occurring at St. Lucia; the origin of the disease could not be clearly traced, but it was thought to have been imported by infected ships. The average rates of sickness and mortality from this fever in the West Indies for the previous nine years were 1·2 and ·68 per 1,000 respectively.

Dysentery.—There were 10 admissions in Jamaica and 1 in Barbados, a total of 11, as compared with 5 in the last year, and of 8 cases of *influenza* 6 occurred in Jamaica.

Malarial Fevers.—107 cases are returned, comprising 79 of ague and 28 of remittent fever, one of the latter terminating fatally. The ratio of prevalence, 83·1 per 1,000, is higher than that for the previous year by 44·9, and in excess of the average rate for the preceding nine years by 40·4. At St. Lucia there were 66 cases of ague and 2 of remittent fever, including the fatal case; at Barbados only 6 cases of ague were recorded, the remainder, 7 cases of ague and 26 of remittent fever, occurring in Jamaica, mostly at Up Park Camp.

Septic Diseases were represented by a single case of erysipelas.

Venereal Diseases.—There were 70 admissions for *primary syphilis*, or a ratio of 54·4 per 1,000, which is higher than that for the year before by 3·5. Including simple venereal ulcer, for which there were 112 admissions and 8·97 men constantly sick, the admission ratio for primary venereal sores was 141·4 per 1,000, below the last year's rate by 13·4, but in excess of the average by 9·0, the ratio of constant inefficiency, 11·94 per 1,000, being lower in the first comparison by ·37, but higher in the second by 1·53. The admission ratio for primary venereal sores in the Barbados Command was 144·8, and the ratio constantly sick 12·64, both lower than in 1894 by 55·2 and 3·79 per 1,000 respectively; in Jamaica the admission rate, 136·8, and the constantly sick rate, 11·00 per 1,000, are higher than in the last year by 44·3 and 4·36. The admissions for *secondary syphilis* were 59 in number, and 6·61 men were constantly sick, the equivalent ratios being 45·8 and 5·14 per 1,000 respectively, which are higher than the previous year's ratios by ·2 and 1·51, and than the average rates by 7·5 and 1·26 respectively. In the Barbados Command the ratios of admission and constantly sick were 47·4 and 5·53, as compared with 41·3 and 3·52 in the year before, and in Jamaica they were 43·8 and 4·60 as against 51·6 and 3·77. *Gonorrhœa* caused 187 admissions and the constant sickness of 10·70 men, equal to ratios of 145·3 and 8·31 per 1,000 respectively, lower than in 1894 by ·5 and 1·80, and below the nine years' average rates by 6·4 and 2·75. In the Barbados Command the ratio of admission was 196·2, and that of constantly sick 11·45, the former being higher by 28·5 and the latter lower by 1·52 than in the previous year. In Jamaica these rates equalled 76·6 and 4·09, as compared with 115·7 and 6·17 in 1894. Taking all these forms of venereal disease together, the total admission rate was 332·5 per 1,000, which is below the corresponding rate in the previous year by 13·7, but above the average rate for the preceding nine years by 10·1; the total amount of constant inefficiency on account of these diseases was 25·39 per 1,000, below the last year's rate by ·66, but above the average by ·04. In the Barbados Command the total admission ratio was 388·4, and the total constantly sick rate 29·62 per 1,000, as compared with 409·0 and 32·92 in the preceding

year, and in Jamaica the rates were 257·2 and 19·69, as against 259·8 and 16·58 in 1894. *West Indies.*

Parasitic Diseases were represented by one case of tænia solium, and 7 cases of *alcoholism* are returned, with one death; delirium tremens did not occur. There were 25 cases recorded under the heading of *debility*, of which 22 were in the Barbados Command; the ratio, 19·4 per 1,000, is in excess of the previous year's and average rates by 9·7 and 4·8 respectively.

Rheumatism caused 70 admissions, but no case of rheumatic fever occurred. The ratio of admission, 54·4 per 1,000, is higher than that for the previous year by 36·4 and than the average rate by 19·3. Of the cases, 52 were in the Barbados Command and 18 in Jamaica.

Only 1 admission appears for *tubercular disease* of the lung, and of 9 admissions for *other diseases* of Group D. 6 were on account of anæmia.

Local Diseases.—*Diseases of the Nervous System.*—16 admissions and 1 death are returned, including one case of mental affection. The admission rate, 12·4 per 1,000, is below that for the previous year and the average rate for nine years, by 1·1 and 2·1 respectively. The cases were, 9 of neuralgia, and 1 each of neuritis, vertigo, tetanus, and melancholia in the Barbados Command, and 2 of neuralgia and 1 of neuritis at Jamaica, the death, which occurred at St. Lucia, being due to tetanus.

Diseases of the Eye caused 10 admissions, including 7 for conjunctivitis, the ratio being 7·8 per 1,000 as compared with 9·0 in 1894, and 13·0, the average rate. Of the admissions, 7 occurred in the Barbados Command. *Diseases of other organs of special senses* gave an admission rate of 27·2 per 1,000, higher than the last year's rate and than the average by 7·0 and 5·3 respectively. Of 35 cases all but 3 were due to inflammation of the external meatus, and only 3 admissions occurred in Jamaica.

Diseases of the Circulatory System were the cause of 4 admissions, being at the rate of 3·1 per 1,000, below that for 1894 by 5·1 and 7·4 less than the average. One case each of valvular disease of the heart, palpitation, and syncope occurred in the Barbados Command, and 1 of palpitation in Jamaica.

Diseases of the Respiratory System, with 28 admissions, gave a ratio of 21·8 per 1,000, as compared with 20·9 in the year before, and 29·6, the average rate. Only 4 of the cases occurred at Jamaica, and the total included 18 of bronchitic affection, 4 of asthma, and 3 of pleurisy.

Diseases of the Digestive System.—The admission ratio was 68·4 per 1,000, lower than that in 1894 by 6·4, and below the average rate by 35·0. The 88 admissions included 27 for affections of the mouth and throat, 22 for dyspepsia, 15 for diarrhœa, and 10 for hepatic diseases; 57 occurred in the Barbados Command and 31 at Jamaica.

Diseases of the Lymphatic and Glandular System gave a ratio of 48·2 per 1,000, less than that for the year before by 5·6 and than the average by 5·0. *Diseases of the urinary system*, with only 2 admissions, both for irritability of bladder, were less frequent than usual, while *diseases of the generative system* caused 150 admissions, mostly for simple venereal ulcer and orchitis, the ratio, 116·6 per 1,000, being below the previous year's rate by 12·1, but above the average by 3·3. There were 12 admissions for *diseases of the organs of locomotion*, the equivalent ratio being 9·3 per 1,000, which is higher than that for 1894 by 6·3, and than the nine years' average rate by 1·1, while *diseases of the connective tissue* gave 53 admissions, the ratio, 41·2 per 1,000, being higher in the two comparisons by 2·3 and 1·4 respectively. *Diseases of the skin* were the cause of 121 admissions, or 94·0 per 1,000, as compared with 62·1 in the previous year, and 77·8, the average rate.

Poisons.—Four cases of poisoning and one death are reported, one at Jamaica being returned as lead colic, while of 3 cases in the Barbados Command one was due to manchineal, one to the consumption of poisonous fish, and one, fatal, to the inhalation of chloroform vapour.

Injuries.—There were 2 deaths from accidental drowning, one each at Port Royal and St. Lucia. The admissions for local injuries were 161 in number, being in the ratio of 125·1 per 1,000, which is higher than that for the year previous by 5·4, but lower than the nine years' average rate by 15·3. Wounds, sprains, and contusions were the chief causes of admission.

West Indies.

Invaliding.—The number of men invalided home from the West Indies was 22, equal to a ratio of 17·09 per 1,000, which is below the corresponding rate in the previous year by 2·36, and below the decennial average rate by 2·81. The invaliding rate for the Barbados Command was 24·36 per 1,000, and that for Jamaica 7·30, as compared with 28·39 and 7·12 in 1894. Of the men invalided the 1st Battalion Leicestershire Regiment furnished 16, the Artillery 4 and other corps 2. With regard to age 11 men, or 15·87 per 1,000, were between 20 and 25 years of age, 8 men, or 18·78 per 1,000, were between 25 and 30, and 3 men, or 20·98 per 1,000, were over 30 years of age. With regard to service in the West Indies, 3 men, or 9·12 per 1,000, were in their first year of service, 4 men, or 8·11 per 1,000, were in their second year, 11 men, or 25·17 per 1,000, were in their third year, and 4, or 142·86, had more than three years of service. The causes of invaliding were debility 4 cases, rheumatism 3, anæmia 3, secondary syphilis and aural disease 2 each, and tubercle of lung, hemiplegia, epilepsy, melancholia, palpitation, inflammation of glands, fracture, and wound, one case respectively.

The number of men discharged the service during the year as medically unfit for further service was 14, equal to a ratio of 10·88 per 1,000, which is less than the corresponding rate in the previous year by 1·09, and below the average rate of the preceding ten years by 2·42. The number of men from the Barbados Command alone who were discharged as invalids was 12, or 16·24 per 1,000, and there were 2 men, or 3·65 per 1,000, who came from Jamaica. The disabilities necessitating discharge were of debility, tubercle of lung, aural disease, and valvular disease of heart 2 cases each, and secondary syphilis, anæmia, hemiplegia, melancholia, paralysis of larynx, and concussion of cord one case respectively.

Officers.—The average strength was 110, 50 being stationed in the Barbados Command and 60 in Jamaica. The attacks were 27 in the former and 46 in the latter, a total of 73, giving a ratio of sickness of 663·6, which is lower than the corresponding rate in the preceding year by 79·8. Among the cases treated were 9 of malarial fever, 8 each of simple continued fever and influenza, and 13 of injury. No death occurred, but 5 officers were invalided, 2 from the Barbados Command and 3 from Jamaica, the causes being malarial fever 2 cases, and debility, inflammation of gland and necrosis one case respectively.

Women.—The average strength was 116, and the attacks of illness 75, equal to a ratio of 646·5 per 1,000, a decrease of 139·2 from the last year's rate; there was one death or 8·62 per 1,000, as compared with 17·86 in 1894. In the Barbados Command the strength was 68, and the cases of sickness 35, and in Jamaica the strength was 48 and the cases of sickness 40. The principal causes of sickness were debility 19 cases, diseases of the generative system 8, rheumatism 6, simple continued fever 5, and diarrhœa 5, the death being due to meningitis.

Children.—The average strength was 208, 120 being at Barbados and 88 at Jamaica. There were 37 cases of sickness in the former Command and 74 in the latter, the total 111, giving a ratio of sickness equal to 533·6 per 1,000, which is lower by 114·1 than the rate in the preceding year. There were 8 deaths, or 38·46 per 1,000, a decrease of 1·31; of these 3 occurred in the Barbados command and 5 at Jamaica. The cases included 21 of measles, 15 of diarrhœa, 9 of debility, 8 of simple continued fever, 7 of malarial fever, and 6 of bronchitis. There was one death each from measles, remittent fever, debility, infantile convulsions, malformation, bronchitis, stomatitis, and enteritis.

Sanitary Conditions.—The Senior Medical Officer of the Barbados Command, Brigade-Surgeon-Lieutenant-Colonel H. J. O'Brien, M.B., states that the sanitary condition of the barracks and hospitals was good throughout the year, and that there was no overcrowding. The water supply at Barbados was ample and excellent, and at St. Lucia a system of waterworks was in course of construction by the Colonial government, and negotiations were being carried on with a view to obtaining a supply from that source for the troops, that then in use being derived from rain water stored in tanks, and though of good quality and sufficient for ordinary purposes, was not enough to permit urinals and sinks to be constantly flushed. Among the improvements effected during the

year at Barbados were the erection of a new foul bedding store in the Army Service Corps yard, the improvement of drainage of the Royal Engineers laboratory yard, and the provision of a new coffee-shop for the men in the Brick Barracks and a temporary wash-house at the station hospital. At St. Lucia there was an increase in the number of admissions for ague, attributed to the exceptionally wet season, and also to the fact that men were temporarily quartered in the La Toc huts ments at a time when excavations for new buildings had recently been made and the "Bananas Bay" swamp had not been reclaimed; the drainage near La Toc having been greatly improved, there has been a diminution of sickness among the troops quartered there. In the month of March an outbreak of yellow fever occurred; the first four cases came from La Toc hutments, which are situated at about half a mile from the town of Castries, some 250 feet above the harbour; three were in artillerymen recently arrived from Canada, the fourth being a mulatto of the St. Lucia Company R.A., and two more cases followed in men of the Medical Staff Corps at the Morne during the month of May. The next two cases were in two artillerymen at the Morne in June, and four months elapsed before the admission of the next case, which was in a man of the 1st Leicestershire Regiment, who was under treatment in hospital for venereal disease, and who developed symptoms of yellow fever on 8th November, an orderly of the Medical Staff Corps being also attacked on the 22nd of that month. The reasons given by the Senior Medical Officer to support the theory of importation are:—1st. There had been no case among the troops for many years. 2nd. Ships from infected ports visit Castries harbour, and the local quarantine regulations are not, in his opinion, sufficient to exclude the germs of the disease from the town. 3rd. The town was placed "out of bounds" on two occasions, and that all the cases, with one exception, occurred while the town was "in bounds," the exception was that of an hospital orderly. That the disease did not become epidemic is probably due to the excellent sanitary state of the barracks and to the precautionary measures adopted. Among the improvements at St. Lucia were the provision of brick quarters for three officers at La Toc, and the re-roofing of the station hospital at the Morne, which was enlarged by the re-appropriation of an adjoining building formerly used as a barrack for the Medical Staff Corps and for administrative purposes, thus increasing the accommodation by 11 beds; a verandah was also fitted to this extension. A complete administrative block, including quarters for wardmaster and steward, and barrack room for the Medical Staff Corps, was taken into use. The foul drainage system completed at the Morne worked well; it was extended to La Toc, and will ultimately be completed to the sea. The swamp known as "Bananas Bay" was reclaimed and well drained with excellent result. *West Indies.*

The Senior Medical Officer at Jamaica, Brigade-Surgeon-Lieutenant-Colonel J. G. Williamson, states that there is nothing in the reports from the medical officers to show that there were any causes at work to injuriously affect the health the troops in the island. He refers to the system of water supply at Up Park Camp, and although he cannot definitely state that the dual water supply has caused disease during the year is of opinion that all water brought into camp should be suitable for drinking purposes. The ablution arrangements at the hospital and elsewhere were considered insufficient, and it was proposed to supplement them as funds became available. Concrete floorings beneath the hospital and some of the barracks were to be provided, and the underground drains which were completed during the year were to be connected with the main drainage of Kingston as soon as the latter was sufficiently advanced to receive them, but the dry-earth system of conservancy was still in force. Considerable correspondence took place respecting the condition of a nullah, having no outlet, situated just within the camp boundary, into which waste water from some houses outside the camp was discharged, and endeavours were being made to compel the civilian owners of these properties to adopt a better system, so that there may be no direct overflow into Government land. At Newcastle the canteen was entirely rebuilt, and proved very satisfactory, but a barrack-room close to the hospital was needed for the Medical Staff Corps.

West Indies.

II.—Non-European Troops.

The average strength of non-commissioned officers and men, exclusive of European sergeants, was 1,427; of these 480 were stationed in the Barbados Command and 947 in Jamaica. The force in the Barbados Command consisted of the St. Lucia Company, Royal Artillery, and detachments of the West India Fortress Company, Royal Engineers, and 2nd Battalion West India Regiment, the latter being relieved by a detachment of the 1st Battalion in January. The stations occupied were Barbados and St. Lucia, average strength 226 and 254 respectively. In Jamaica were the Jamaica Company, Royal Artillery, the West India Submarine Mining and Fortress Companies, Royal Engineers, and the headquarters of the 2nd Battalion and the Depôt West India Regiment, the former leaving for West Africa in February, being replaced by the 1st Battalion from that Command; the stations occupied were Port Royal, average strength 191, and Up Park Camp, 700, while a detachment of the West India Regiment was at Belize, British Honduras, until October, the average annual strength of which was 56.

The more important statistics of the sickness and mortality among non-European troops in each of the divisions, as well as among those serving in the West Indies as a whole, will be found in the subjoined table :—

1895.	Average Strength.	Admissions.	Deaths			Invalids	
			In the Command.	Of Invalids.	Total.	Sent Home.	Finally Discharged.
Barbados Command - -	480	528	5	—	5	—	7
Jamaica - - - - -	947	947	10	—	10	—	46
West Indies - - -	1,427	1,475	15	—	15	—	53

continued.)

1895.	Average constantly Sick.	Ratio per 1,000 of Strength.				
		Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Average constantly Sick.
Barbados Command - -	28·43	1100·0	10·42	—	14·58	59·23
Jamaica - - - - -	65·87	1000·0	10·56	—	48·57	69·56
West Indies - -	94·30	1033·6	10·51	—	37·14	66·08

Taking the statistics for the Barbados Command and comparing them with those recorded in the previous year, a decrease is observed in all the ratios, being 171·3 in the case of admissions, 3·75 in that of death, and 18·36 in that of constantly sick. The average sick time to each soldier was 21·62 days, which is shorter by 6·70 days than the corresponding period in the previous year. The average duration of each case of sickness was 19·65 days, which is less by 2·63 days.

In Jamaica there was an increase of 26·4 per 1,000 in the ratio of admission, and one of 3·28 in that of mortality, but a decline of ·53 occurred in the

constantly sick rate. The average sick time to each soldier and the average duration of each case of sickness were both 25·39 days, and were less than corresponding periods in the preceding year by ·19 and ·89 of a day respectively. *West Indies.*

Taking all the non-European troops in the West Indies it is observed that the admission rate is lower by 32·3, and the constantly sick rate by 6·34, while the death rate is higher by 1·09 than in 1894; in comparison with average similar ratios for the preceding ten years, the admission, mortality, and constantly sick rates show a decrease of 156·7, 2·58, and 5·94 per 1,000 respectively. The average sick time to each soldier, 24·12 days, was shorter than in 1894 by 2·31, and than the corresponding average period for the preceding ten years by 2·16; the average duration of each case of sickness, 23·33 days, is shorter in the former comparison by 1·47, but longer than the average by 1·25 days.

With regard to the sickness and mortality of corps in the Barbados Command, the admission rate for the St. Lucia Company, Royal Artillery, was 1040·0, that for the West India Fortress Company, Royal Engineers, 611·1, and for the detachments of the West India Regiment the admission rate was 1141·3, and the death rate 11·08 per 1,000 dependent on 4 deaths; there was also a death in the Artillery Company, the ratio of mortality for which was 9·90 per 1,000.

In Jamaica the Jamaica Company, Royal Artillery, had an admission ratio of 1406·6, and a mortality rate of 10·99, one death being recorded; the West India Submarine and Fortress Companies, Royal Engineers, gave an admission rate of 649·5, and the Battalions of the West India Regiment, an admission rate of 940·0, and a death rate of 12·40 per 1,000. In the Depôt, West India Regiment, the admission rate was 1098·5 and that of mortality 10·95.

Taking the troops in the West Indies together, the sickness according to age shows that among men under 20 years of age the admission ratio was 520·0 per 1,000, among men between 20 and 25 years of age it was 1713·7, among men in the next quinquennium 871·9, and among men over that age 444·4 per 1,000. In the preceding year the highest ratio occurred in men under 20 years of age, and the ratio fell throughout the succeeding periods of age, the lowest being as in the year now under notice. Mortality among men under 20 years of age was at the rate of 11·43 per 1,000, dependent on 2 deaths; among men between 20 and 25 years of age, 14·31 per 1,000, dependent on 7 deaths; among men between 25 and 30 years of age, 6·20, dependent on 3 deaths, and among men over that age 10·75, also dependent on 3 deaths. In the previous year the highest mortality rate was among men between 25 and 30 years of age. With regard to length of service the admission ratio among men in their first year was 1033·6 per 1,000, that among men in their second year 1462·0, that among men in their third year 990·0, and that among men over three years' service 642·1. The mortality rate among men in their first year of service was 11·54, dependent upon 11 deaths; among men in their second year 10·87 per 1,000, 2 deaths; among men in their third year 10·00 per 1,000, one death, and among men over three years' service 5·26 per 1,000, dependent on one death.

In Abstract VII. will be found the chief statistics of sickness and mortality arranged according to the different groups and orders of diseases.

General Diseases.—*Diseases dependent on Morbid Poisons.*—The admissions recorded under the head of *eruptive fevers* were 9 in number, or 6·3 per 1,000, a decrease of 2·5 from the corresponding rate in the previous year. The cases comprised 7 of cow-pox and 1 each of chicken-pox and measles, and all occurred at Jamaica. *Enteric fever* caused 3 admissions and 1 death, as compared with 2 and no death in 1894; the ratio of prevalence was 2·1 per 1,000, higher than that for the preceding year by ·8, but below the average rate for nine years by 1·1. All the cases were admitted at Up Park Camp, Jamaica, in November and December, and the water supply was suspected as the possible cause. *Simple continued fever* was the cause of 52 admissions at Jamaica and 15 in the Barbados Command, a total of 67, or a ratio of 47·0, which compares favourably with 97·9 in the previous year, and 107·3, the average rate. There was one fatal case of *yellow fever* in a gunner at St. Lucia, the disease being probably introduced into the island from the shipping. The

West Indies. admissions for *dysentery* numbered 7, the ratio, 4·9 per 1,000, being below that for 1894 and the average rate by 8·9 and 8·6 respectively. All the cases occurred at Jamaica. *Other diseases* of the 1st sub-group were represented by 4 admissions for influenza and 3 for mumps.

Malarial Fevers.—153 admissions are recorded with 6 deaths, the admission ratio, 107·2 per 1,000, being above the previous year's rate by 63·2, and higher than the average rate by 9·1. Of the cases, 69, or 72·9 per 1,000, occurred in Jamaica, 23 being returned as ague, 44, 4 fatal, as remittent fever, and 2 as malarial cachexia. In the Barbados Command 84 cases were admitted, 60 of ague, and 2 (one fatal) of remittent fever at St. Lucia, and 20 of ague and 2 of remittent fever (one fatal) at Barbados, the rate of prevalence being 175·0 per 1,000.

Venereal Diseases.—The admissions for *primary syphilis* were 158 in number, being in the ratio of 110·7 per 1,000, above the corresponding rate in the previous year and the average rate by 17·8 and 11·4 respectively. Of the cases 147, or 155·2 per 1,000, were returned in Jamaica, and 11, or 22·9 per 1,000, in the Barbados Command. Including the sickness from simple venereal ulcer, which caused 100 admissions, and the constant sickness of 7·50 men, the admission ratio for primary venereal sores was 180·8, and the constantly sick rate 15·66 per 1,000, which are higher than the corresponding rates in the previous year by 30·1 and 5·28, but lower than similar average rates for the preceding nine years by 14·8 and 1·38 respectively. Taking Jamaica alone the admission rate for primary venereal sores was 167·9, and the constantly sick rate 15·12 per 1,000, as compared with 137·4 and 8·07 in 1894. In the Barbados Command the rates were 206·2 and 16·70, as compared with 180·2 and 15·51 respectively in the previous year.

The admissions in the West Indies for *secondary syphilis* numbered 48, and 5·02 men were constantly sick, being in the ratios of 33·7 and 3·52 per 1,000, which are lower than the corresponding rates in the previous year by 17·8 and 2·06, and than the average ratios for the preceding nine years by 13·5 and 1·08 respectively. In Jamaica only, the admission rate was 32·7 and the constantly sick rate 3·72 per 1,000, as compared with 44·6 and 3·91 in the previous year. In the Barbados Command the ratio of admission equalled 35·4 and the constantly sick rate 3·12 per 1,000, as compared with 66·8 and 9·29 per 1,000 respectively in 1894. *Gonorrhœa* caused 233 admissions in all, and 15·29 men were constantly sick with this disease. The admission ratio was, therefore, 163·3, and the constantly sick rate 10·71, per 1,000. Compared with corresponding ratios in the previous year there is an increase of 12·7 in the admission rate and one of ·91 in the constantly sick rate, while compared with average similar rates for the preceding nine years a decline of ·9 is observed in the former, and an increase of ·32 in the latter. In Jamaica alone the ratio of admission was 166·8 and the constantly sick rate 12·45 per 1,000, as compared with 135·6 and 9·70 in 1894. In the Barbados Command the admission ratio was 156·2 and the constantly sick rate 7·29 per 1,000, as compared with 184·2 and 10·02 respectively in the preceding year. Including all forms of venereal disease, the total admission ratio in the West Indies was 377·8 per 1,000, which is higher than the corresponding rate in the previous year by 25·0, but lower than the average rate of nine years by 29·2. The total amount of constant inefficiency on account of these diseases was 29·89 per 1,000, above the similar rate in the previous year by 4·13, but lower than the average rate for nine years by 2·14. Taking Jamaica alone, the total admission rate for all forms of venereal disease was 367·4, and the total amount of constant inefficiency on this account, 31·29 per 1,000, as compared with 317·6 and 21·68 respectively in the preceding year. In the Barbados Command the total admission rate was 397·8 and the total constantly sick rate 27·11 per 1,000, the corresponding rates in the previous year having been 431·2 and 34·82 per 1,000 respectively.

Under the head of *debility*, 2 admissions are returned, or 1·4 per 1,000, as compared with 5·0 in the preceding year.

Rheumatism was the cause of 91 admissions, equal to a ratio of 63·8 per 1,000, which is greater than in the previous year by 14·8, and than the average rate by 3·6. The admission rate in the Barbados Command was 108·3 and in Jamaica 41·2 per 1,000. All the cases were returned as rheumatism; there was no death.

Tubercular Diseases.—20 admissions and 4 deaths are returned, being in the ratios of 1·40 and 2·80 per 1,000, the former being in excess of the corresponding ratio in the previous year by 1·1, but the latter lower by 1·59. All the cases were due to tubercular disease of the lung, and 15 of them, with 3 of the deaths, occurred at Jamaica, 2, with 1 death, at St. Lucia, and 3 at Barbados. *West Indies.*

Nine cases are returned under *other diseases* of this group of general diseases; they comprised 7 cases of scrofula, and 2 of non-malignant new growth.

Local Diseases.—*Diseases of the Nervous System* caused 11 admissions, or 7·7 per 1,000, a decrease of 1·1 from the last year's rate, and below the average rate of nine years by 3·7. 6 of the cases occurred in Jamaica. The admissions comprised 8 of neuralgia, 2 of paralysis, and one of epilepsy.

Diseases of the Eye.—38 admissions are recorded, the ratio being 26·6 per 1,000, which is higher than that in the previous year by 14·7. In Jamaica there were 25 cases and in Barbados 13; most of the admissions were for conjunctivitis.

Diseases of the Ear caused 7 admissions, all but one being at Jamaica.

Diseases of the Circulatory System.—13 admissions are recorded; the ratio, 5·4 per 1,000, is lower than that in the previous year by 5·4, and than the average rate by 4·1. Of the cases, 3 were valve disease of the heart, two of which occurred at Jamaica, and one at Barbados; the remaining admissions were mostly for palpitation.

Diseases of the Respiratory System caused 57 admissions, the ratio, 39·9 per 1,000, being below the last year's rate by 9·7, and below the average rate by 12·1. 40 admissions occurred at Jamaica, 25 for bronchitis, 8 for pneumonia, 5 for asthma, and one each for pleurisy and pneumonic phthisis; at Barbados there were 14 cases of bronchitis, 2 of pleurisy, and 1 of laryngitis.

Diseases of the Digestive System.—91 admissions are recorded, the ratio, 63·8 per 1,000, being below that in the preceding year by 4·0 and below the average rate by 5·9. 57 cases, or 60·2 per 1,000, occurred at Jamaica, and 34, or 70·8 per 1,000, in the Barbados Command. Among the former were 23 cases of affections of the mouth and throat, 16 of diarrhœa, and 7 of dyspepsia, and among the latter 13 of mouth and throat affections, 11 of dyspepsia, 5 of diarrhœa, and 3 of colic. No death occurred.

Diseases of the Lymphatic and Glandular System were the cause of 48 admissions, or 33·7 per 1,000, which is lower than in the previous year by 4·6, 29 of the cases occurred in Jamaica, the remainder in the Barbados Command, where a death occurred from lymphadenoma. There was only one admission for *urinary affection*, a case of Bright's disease at Jamaica, which proved fatal. *Diseases of the generative system* caused 133 admissions, or 93·1 per 1,000, an increase of 1·4 on the previous year's rate; 100 of the admissions were for simple venereal ulcer and 21 for orchitis. 7 admissions are recorded for *diseases of the organs of locomotion*, or 4·9 per 1,000, as compared with 8·8 in 1894. There were 43 admissions, or 30·1 per 1,000, for *diseases of the connective tissue*, a decrease of 6·9; and there were 108 admissions for *skin disease*, the admission rate, 75·7 per 1,000, being lower than in the previous year by 14·7, and below the average rate by 7·7.

Injuries.—106 admissions are returned and 1 death. The admission ratio was, therefore, 74·3 per 1,000, which is above the corresponding rate in the previous year by 7·1, but below the average rate by 6·1. In Jamaica the ratio was 77·1, and in the Barbados Command 68·7 per 1,000. The cases were generally of an ordinary character, and the death was due to accidental drowning at Port Royal, Jamaica.

Invaliding.—The number of men discharged during the year as medically unfit for further service was 53, being in the ratio of 37·14 per 1,000, which is higher than the corresponding rate in the previous year by 5·12, but below the decennial average rate by 3·33. In the Barbados Command the number of men invalided was 7, or 14·58 per 1,000, as compared with 46·56 in the preceding year, and in Jamaica the number was 46, or 48·57 per 1,000, as compared with 25·48. The principal causes of invaliding were secondary syphilis 9 cases, tubercular disease of the lung 9, valve disease of the heart 4, and malarial fever, scrofula, hernia, and inflammation of glands 3 cases each.

West Indies.

Women and Children.—The average strength of women was 71, and there were 39 cases of illness with 2 deaths, and the average strength of children was 67, with 62 cases of illness, 3 of which proved fatal. The deaths among the women were, one each from influenza and eclampsia, those among the children being due to thrush, rheumatic fever, and convulsions respectively.

Sanitary Conditions.—The Senior Medical Officer at Jamaica reports that the general health of the non-European troops was good, and that their quarters were in a satisfactory sanitary condition. The food was good and sufficient, the clothing suitable, and the duties conducive to health. The Senior Medical Officer of the Barbados Command states that at Barbados sanitation was well maintained, but no improvements of any importance were effected. At St. Lucia the La Toc hutments were completed and occupied by the St. Lucia Company, R.A. in March, and quarters for three officers of that Company were being erected; a skittle alley was also provided.

VII.—ON THE HEALTH OF THE TROOPS SERVING IN WESTERN AFRICA.

Sickness and Mortality.

I.—European Troops.

West Africa.

The European troops consisted of the officers serving in the Command, the European non-commissioned officers of the West India Regiment, and the non-commissioned officers and men of the Royal Artillery and the Royal Engineers, the latter only remaining on the coast during the dry season from November to June. The average strength of the non-commissioned officers and men was 43, and there were 118 admissions into hospital, equal to a ratio of 2744·2 per 1,000, a decrease of 231·4 as compared with the corresponding rate in the previous year. Of the admissions, 78 were for remittent fever, 18 for venereal disease (including 11 for simple venereal ulcer), 3 for debility, and 3 for rheumatism. Two deaths occurred, both from remittent fever, and 11 men were invalided, 10 for remittent fever and 1 for suppuration of glands. In an average strength of 37 officers there were 84 cases of sickness, including 50 of remittent fever and 10 of ague, the ratio, 2270·3 per 1,000, being slightly under that recorded for the preceding year. There was no death, but 8 officers were invalided, 4 on account of remittent fever, 2 for tubercle of lung, and 1 each on account of heatstroke and gunshot wound (accidental).

II.—Non-European Troops.

The average strength of non-commissioned officers and men was 1,082; of these 1,066 were stationed at Sierra Leone, and 16 at Bathurst, Gambia, the garrison at the latter station being withdrawn at the end of February. These troops consisted of the Sierra Leone Company, Royal Artillery, the 1st Battalion West India Regiment, which left for the West Indies in January and February on relief by the 2nd Battalion of the same regiment, and a detachment of the West India Fortress Company, Royal Engineers.

The more important of the statistics of sickness and mortality are given in the following table:—

1895. Average Strength.	Admissions.	Deaths			Invalids		Average constantly Sick.	Ratio per 1,000 of Strength.				
		In the Command.	Of Invalids.	Total.	Sent to West Indies.	Finally Discharged		Admissions.	Deaths.	Invalids sent to West Indies.	Invalids finally Discharged.	Constantly Sick.
1,082	2,469	11	2	13	58	2	104·94	2281·9	12·01	53·60	1·85	96·99

Compared with corresponding results in the previous year, the admission rate has increased by 794·2, and the constantly sick rate by 31·77, but the mortality rate has decreased by 6·75; and in comparison with similar average ratios for the preceding ten years the admission and constantly sick rates are higher by 430·1 and 13·64 respectively, the death rate being lower by 9·87.

West Africa. The average sick time to each soldier, 35·40 days, is longer than the corresponding period in 1894 by 11·60 and than the decennial average period by 4·98; the average duration of each case of sickness was 15·51 days, shorter than in the year before by about half a day, and than the similar average period for the preceding ten years by nearly a day.

The admissions, mortality, invaliding, &c. arranged according to the different groups and orders of diseases will be found in Abstract VIII.

General Diseases.—*Diseases dependent on Morbid Poisons.*—There were 3 cases of *small-pox* of a mild type, the disease being contracted in the town where it was epidemic at the time. *Other eruptive fevers* were represented by 2 admissions for cow-pox, and there was 1 case of *dysentery* and 3 of influenza.

Malarial Fevers were the cause of 1,688 admissions and 6 deaths, being in the ratios of 1,560·1 and 5·55 per 1,000, which are higher than those for the previous year by 992·7 and ·86, while compared with the average ratios for the preceding nine years the admission rate is higher by 701·1, but the mortality rate is lower by 1·76. This notable increase is stated to be mainly due to the large number of young and unacclimatized men serving in the Command during the year. All but 13 of the cases were of the remittent type, and in May the disease assumed a grave form, 3 deaths resulting in ten days. All the six deaths were due to remittent fever.

Venereal Diseases.—Primary syphilis caused 19 admissions, being at the rate of 17·6 per 1,000, as compared with 27·0 in 1894 and 49·8, the average rate for nine years. Including simple venereal ulcer, for which there were 124 admissions and 10·00 men constantly sick, the admission ratio for primary venereal sores was 132·2 per 1,000, in excess of the previous year's and average rates by 12·6 and 33·1 respectively. *Secondary syphilis*, with 54 admissions, gave a ratio of 49·9 per 1,000, also higher in the two comparisons, by 8·9 and 1·9 in each instance. *Gonorrhœa* contributed 131 cases, or a ratio of 121·1 per 1,000, above the last year's rate by 12·1, but below the average by 17·1. Taking all these forms of venereal disease together, the total admission rate was 303·2, which is higher than that for the year before by 33·6, and 17·9 above the nine years' average. The total amount of constant inefficiency on account of these diseases was equal to 27·72 per 1,000, as compared with 17·67 in the previous year and 20·68, the average ratio.

There was 1 admission for *alcoholism*, as in the previous year, and 3 cases of *debility* are returned, as compared with 7 in 1894.

Rheumatism.—60 admissions and 1 death are recorded; the ratio of prevalence, 55·5 per 1,000, compares favourably with 73·9 in the last year and 87·7, the average rate. No case of rheumatic fever occurred.

Tubercular Diseases.—16 admissions are returned, with 4 deaths, including that of an invalid who had left the Command, being in the ratios of 14·8 and 3·70 per 1,000, the former being higher than the previous year's rate by 7·8 and than the average ratio by 4·8; the mortality rate is lower in the two comparisons by ·99 and ·62 respectively. All the admissions and deaths were due to lung affection. The remaining admissions for diseases in Group D. were 2 for non-malignant new growth.

Local Diseases.—*Diseases of the Nervous System.*—There were 5 admissions, or 4·6 per 1,000, as compared with 17·5 in 1894, and 14·9, the nine years' average rate. Four of the admissions were for epilepsy, and there was one case of neuralgia. *Diseases of the eye* gave a ratio of 14·8 per 1,000, less than in the preceding year by 1·6 and 8·6 below the average. Of 16 admissions, 14 were due to conjunctivitis. There were 2 admissions for *aural disease. Diseases of the circulatory system* caused 6 admissions, the ratio, 5·5 per 1,000, being below that for the year before and the average rate by 10·9 and 11·9 respectively. There were two cases of valvular disease of the heart, two of palpitation, and one each of hypertrophy of heart and aneurysm. *Diseases of the respiratory system*, with 34 admissions, gave a ratio of 31·4 per 1,000, below last year's rate by 35·4 and less than the average by 31·5. The cases included 19 of bronchitis and 9 of pneumonia. *Diseases of the digestive system* were the cause of 42 cases, equal to 38·8 per 1,000 as compared with 93·8 in the year before and 75·4, the nine years' average rate. Among the cases treated were 15 of sore throat, 9 of diarrhœa, 5 of colic, 4 of dyspepsia,

and 4 of hernia. *Diseases of the lymphatic and glandular system* were the origin of 43 admissions, the ratio, 39·7 per 1,000, being in excess of that in the preceding year by 20·9, but 8·0 below the average. Of 4 admissions for *diseases of the urinary system* two were for Bright's disease, one proving fatal. *Diseases of the generative system* gave a ratio of 145·1 per 1,000, above last year's rate by 31·4, and 68·4 in excess of the average. Of 157 admissions, simple venereal ulcer was the chief cause, and there were 21 cases of orchitis. Under *diseases of the organs of locomotion* 3 admissions are returned, and *diseases of the connective tissue*, with 40 cases, gave a ratio of 37·0 per 1,000, fractionally below that for the year before and less than the average rate by 1·4; one death occurred from abscess in an invalid who had left the Command. *Diseases of the skin* caused 72 admissions, half of which were for ringworm, the ratio, 66·6 per 1,000, comparing very favourably with 167·7 in 1894 and 156·5, the nine years' average rate.

Injuries.—Of 62 cases, 31 were due to wounds, and 11 each to contusions and sprains, the admission ratio being 57·3 per 1,000, which is lower than in the previous year by 11·9 and than the average rate by 19·6.

Invaliding.—The number of men invalided to the West Indies was 58, equal to a ratio of 53·60 per 1,000, below the last year's rate by 21·43, but 16·35 in excess of the average ratio for the preceding ten years. The chief causes of invaliding were malarial fevers 17 cases, secondary syphilis 9, and rheumatism and tubercle of lung 6 cases each. The number of men finally discharged the service was only 2, one each for ascites and hernia, the ratio per 1,000 being 1·85, as compared with 42·20 in 1894 and with 16·45, the decennial average rate.

Women and Children.—In an average strength of 33 women 113 cases of sickness were treated, the ratio of prevalence of sickness being as high as 3424·2, about three times that of the preceding year. Malarial fevers alone accounted for 77 admissions, and among the remainder were 5 cases of dyspepsia, 4 each of debility and neuralgia, and 3 of rheumatism, anæmia, and bronchitis respectively. The average strength of children was 30, and 57 attacks of illness occurred, the ratio being 1900·0 as compared with 609·8 in the year before. Of the admissions, 48 were due to malarial fever. No death occurred among either women or children.

Sanitary Conditions.—The Senior Medical Officer states that the barracks were in a satisfactory condition throughout the year, but owing to the withdrawal of men from certain out-stations those at Tower Hill became overcrowded during the rainy season, and it is proposed to increase the accommodation there, and also to construct a hut for 26 men at Mount Auriol. The King Tom Peninsula has proved to be very unhealthy during the rains, and the project of building more quarters for European troops there has been abandoned. The ventilation was good, and the dry-earth system of conservancy well conducted; the rations were satisfactory, and the water supply good and abundant.

The hospital accommodation was inadequate during the wet season, and a proposal to increase the capacity of the building by 30 beds was put forward. A new women's latrine was built at Mount Auriol, and a new surgery and ablution room at the station hospital were erected, but were not taken into use on account of the non-arrival of certain fittings. The provision of quarters within the hospital enclosure for the non-commissioned officer performing the duties of wardmaster and compounder was sanctioned, and a site selected.

VIII.—ON THE HEALTH OF THE TROOPS SERVING IN SOUTH AFRICA AND AT ST. HELENA.

Sickness and Mortality.

South Africa and St. Helena.

The average strength of the warrant officers, non-commissioned officers, and men serving in the Command during the year was 3,491, and of these 215 were stationed at St. Helena.

The troops included the 3rd Dragoon Guards, who embarked for home in October, being relieved by the 7th Hussars; the 10th Mountain Battery, Nos. 25 and 26 Companies, Western Division, Royal Artillery, the two former throughout the year and the last named arriving from England in June, and a detachment of the District Establishment, Royal Artillery; the 29th Company, Royal Engineers; the 2nd Battalion West Riding Regiment, the 2nd Battalion York and Lancaster Regiment, four companies of the Royal Highlanders, and detachments of the Army Service Corps, Medical Staff Corps, Ordnance Store Corps, and General Staff throughout the year.

St. Helena was garrisoned by a detachment of the Royal Artillery and a company of the 2nd Battalion York and Lancaster Regiment.

The subjoined table shows the more important statistics of sickness and mortality relating to the troops in South Africa and in St. Helena, and also those for the whole Command.

1895.	Average Strength.	Admissions.	Deaths			Invalids	
			In the Command.	Of Invalids.	Total.	Sent Home.	Finally Discharged.
South Africa	3,276	3,110	17	1	18	61	44
St. Helena	215	137	3	—	3	—	—
Total	3,491	3,247	20	1	21	61	44

(*continued.*)

1895.	Average constantly Sick.	Ratio per 1,000 of Strength.				
		Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
South Africa	200·16	949·3	5·49	18·62	13·43	61·10
St. Helena	7·63	637·2	13·95	—	—	35·49
Total	207·79	930·1	6·02	17·48	12·61	59·52

Comparing the ratios for the whole Command with those given in a similar table in the report for the previous year, an increase of 61·9 per 1,000 is observed in the admission rate, and one of 4·43 in the ratio constantly sick,

while that of mortality has declined by ·29, and in comparison with corresponding average ratios for the preceding ten years the admission and constantly sick rates are higher by 72·9 and 5·22 respectively, and the mortality rate is lower by ·90 per 1,000. The average sick time to each soldier, 21·72 days, was longer than in 1894 by 1·61, and than the average decennial period by 1·90, the average duration of each case of sickness, 23·36 days, being longer in both comparisons by about a quarter of a day. *South Africa and St. Helena.*

Taking South Africa alone, the admission and constantly sick rates are higher than in 1894 by 65·0 and 4·81 per 1,000 respectively, while the death rate is lower by 1·21. At St. Helena the ratio of admission has increased by 23·4, and that of mortality by 13·95, no death having occurred in 1894, but the constantly sick rate has declined by ·65 per 1,000.

In Abstract XXV. will be found the principal statistics of sickness and mortality among the different corps which served in the Command during the year. Omitting corps whose average strength was less than 100 men, the highest admission ratio was 1551·3 per 1,000 in No. 25 Company, Western Division, Royal Artillery, at Cape Town, next below being 1543·7 in the 7th Hussars at Pietermaritzburg after arrival from India in October; the lowest ratio was 682·2 per 1,000 in the 3rd Dragoon Guards at Pietermaritzburg until embarkation for home in October, and the next above, 934·1, in the 2nd Battalion York and Lancaster Regiment at Wynberg. The highest mortality rates occurred in the Royal Artillery, viz.:—29·94 per 1,000 in No. 10 Mountain Battery at Pietermaritzburg, and 25·64 in No. 25 Company, Western Division. No death occurred in the 1st Battalion Royal Highlanders, and a low ratio, 1·08 per 1,000, is observed in the 1st Battalion York and Lancaster Regiment. The ratio of constant inefficiency was highest, 118·65 per 1,000, in No. 25 Company, Western Division, Royal Artillery, and lowest, 41·43 per 1,000, in the 3rd Dragoon Guards.

With reference to the influence of age on the sickness and mortality among the troops, it is found that the admission ratio was highest, 1386·2 per 1,000, among men under 20 years of age, falling to 1175·1 among men between 20 and 25, 688·1 among those in their next quinquennium, and to 279·7 among those between 30 and 35, rising to 360·4 in men of 35 years of age and upwards. In the previous year the highest ratio occurred among men between 20 and 25, and the lowest among men of more than 35 years of age, and the ratio for men under 20 years was barely half that for the year now under report. Mortality was highest, 18·02 per 1,000, among men of 35 years and upwards, dependent upon 2 deaths in a small strength, next in order being 6·33 among men between 25 and 30, 5·29 among men under 20, 5·00 in those between 20 and 25, and, lowest of all, 3·50 among men between 30 and 35 years of age. In the preceding year all the deaths occurred in men between 20 and 30 years of age. The influence of service in the Command has also been calculated as far as possible, and it is observed that the admission ratio was 1264·2 per 1,000 for men in their first year, falling to 782·5 and 613·7 respectively among those in their second and third years; among men in their fourth year the ratio rose to 1003·9, falling again to 770·8 in men who had been in the Command for five years or longer. In the year before a similar sequence of ratios was recorded, but the highest rate was that among men in their fourth year. Mortality among men in their first year of service was at the rate of 4·88 per 1,000, the lowest rate being 2·01 among those in their second year; in the succeeding periods a rise in the ratios is observed to 5·17 among men in their third year, 15·81 among those in their fourth, and 16·60 among men of five years' service and upwards. In 1894 the highest mortality ratio was 6·72 among men in their first year, and the lowest, 3·68, among those in their third year, no death occurring among men of more than four years' service.

The principal statistics of sickness and mortality arranged according to the different groups and orders of diseases are given in Abstract IX.

GENERAL DISEASES.—*Diseases dependent on Morbid Poisons.—Eruptive fevers* were represented by 2 cases of epidemic rose-rash.

Enteric Fever caused 32 admissions and 3 deaths, equal to ratios of 9·1 and ·86 per 1,000, the former being lower than that in the previous year by 4·8, but fractionally above the average rate of the previous nine years, while the latter is lower in the two comparisons by 1·66 and ·89 per 1,000 respectively. The per-centage of mortality to attack was 9·4, comparing favourably with 18·2 in

South Africa and St. Helena.

the previous year, and with 19·8, the average per-centage for nine years. The cases were distributed as follows :—24 with 1 death at Pietermaritzburg, 4 with 1 death at Eshowe, 2 at Cape Town, 1 at Wynberg, and 1, fatal, at St. Helena. Of those at Pietermaritzburg, 2 occurred in January, 3 in February, 1 each in March and April, 3 in May, 4 in November, and 10 in December. The medical officer in charge of the station hospital is of opinion that the appearance of the disease in November and December after five months' immunity can only be accounted for by the heavy rains with lowering of temperature which occurred after long continued drought and hot weather, but no definite cause could be assigned for the attacks, the sanitary state of the Camp being good throughout the year, and the water supply excellent; condensed milk was generally used by the men, and officers and families who used fresh milk were comparatively free. It is stated that enteric fever was somewhat prevalent among the civil population. The 4 cases at Eshowe all occurred in men from Pietermaritzburg, who marched viâ Durban, the journey occupying ten days; they drank water from various sources and halted at the "outspans" used by both European and native waggon drivers, where the disease was probably contracted. No cause could be given for the cases at Cape Town and Wynberg, but that at St. Helena was attributed directly to the main open sewer of James' Town—the "Run"—and indirectly to the occupation of a damp room adjoining the canteen, where the man was employed. The "Run" was afterwards improved by the civil authorities, and it was recommended that the floor of the canteen waiter's room be concreted, and a gutter carried all round the roof.

For *Other Continued Fevers* there were 111 admissions, or a ratio of 31·8 per 1,000, which is lower than that for 1894 by 6·7, and below the nine years' average rate by 6·0.

There were 29 admissions for *dysentery*, the ratio, 8·3 per 1,000, being in excess of the last year's rate by 6·4 and above the average by 2·5. Twenty-eight cases occurred at Pietermaritzburg and one at Eshowe.

Influenza caused 62 admissions, equal to a ratio of 17·8 per 1,000, as compared with 13·6 in the previous year. Fifty-five cases occurred in the Cape Colony, where the disease appeared in an epidemic form in August.

Malarial Fevers.—58 cases are returned, being in the ratio of 16·6 per 1,000, which is below that for last year and the average rate, by 1·1 and 7·1 respectively. There were 56 admissions for ague, and 1 each for remittent fever and malarial cachexia, mostly occurring among men who had served in India or Mauritius.

Septic Diseases were represented by 6 admissions for erysipelas.

Venereal Diseases.—Primary syphilis caused 294 admissions, viz. :—218 in Cape Colony, 67 at Pietermaritzburg, and 9 at St. Helena, the ratio per 1,000 being 84·3, as compared with 86·7 in the year before, and an average rate of 87·4. Including the sickness from simple venereal ulcer, for which there were 14 admissions, and 1·06 men constantly sick, the admission ratio for primary venereal sores was 88·3, below the last year's rate by 7·9, and less than the average for the preceding nine years by 26·5. *Secondary syphilis*, with 165 admissions, of which 78 occurred in Cape Colony, 69 at Pietermaritzburg, 3 at Eshowe, and 15 at St. Helena, gave a ratio of 47·3 per 1,000, above that for the previous year by 5·7, but below the average rate by 9·3. There was one death in an invalid who had left the Command. *Gonorrhœa* caused 517 admissions, 395 in Cape Colony, 100 at Pietermaritzburg, 18 at St. Helena, and 4 at Eshowe, equal to a ratio of 148·1 per 1,000, in excess of that for 1894 by 11·6 and above the nine years' average by 47·8. Taking all these forms of venereal disease together, the total admission ratio was 283·7, higher than in the preceding year by 9·4, and 12·0 above the average. The total ratio of constant inefficiency from these diseases was 27·71 per 1,000, higher in the two comparisons by 4·55 and 6·45 respectively.

Parasitic Diseases.—Under this heading are returned 13 cases of tænia solium.

There was one admission for *scurvy*, and 12 cases of *alcoholism* were admitted, including two of delirium tremens, one of which proved fatal.

Debility, &c. caused 30 admissions, giving a ratio of 8·3 per 1,000, below the previous year's and average rates by 1·5 and 5·6 respectively.

Rheumatism.—There were 113 admissions, including 5 for rheumatic fever, the ratio, 32·4 per 1,000, being higher than in the previous year by 6·9, but 7·1 below the average rate for the preceding nine years.

Tubercular Diseases were the origin of 15 admissions and 3 deaths. The admission ratio, 4·3 per 1,000, is higher than that for the year before by 1·8, and than the average rate by 1·7. Fourteen of the cases and all the deaths were due to lung affection. *South Africa and St. Helena.*

Under *other diseases* of Group D., 20 cases and 1 death are returned, including 16 of non-malignant new growth, 2 (1 fatal) of anæmia, and 1 of scrofula.

Local Diseases.—*Diseases of the Nervous System* caused 37 admissions, equal to a ratio of 10·6 per 1,000, which is higher than last year's rate by 1·2 and 1·5 above the average. Of the admissions, 12 each were for neuralgia and epilepsy, 7 for vertigo, 3 for melancholia, and one each for paralysis, spasm of muscle, and hystero-epilepsy.

Diseases of the Eye accounted for 37 admissions, giving a ratio of 10·6 per 1,000, in excess of that in the previous year by 3·0, but below the average for nine years by 5·4. The cases included 19 of conjunctivitis, and 6 of blepharitis.

Diseases of other Organs of Special Senses, with 33 cases, gave a ratio of 9·5 per 1,000, as compared with 11·0 in 1894, and with 8·1, the average rate. Aural disease, principally inflammation of the external meatus, accounted for 32 admissions, and there was 1 case of nasal affection.

Diseases of the Circulatory System.—47 admissions and 3 deaths are returned, the ratio of prevalence being 13·5 per 1,000, which is higher than the previous year's rate by 7·8, and than the average rate by 3·1. There were 25 cases of palpitation, 12 of varix, 7 of valvular disease of the heart, 1 of phlegmasia dolens, and 1 fatal case each of syncope and aneurysm of aorta, the third death occurring out of hospital from the last-named affection.

Diseases of the Respiratory System caused 98 admissions and 2 deaths; the admission ratio was 28·1 per 1,000, below the corresponding rate in 1894 by 7·5 per 1,000, but 1·4 in excess of the average. Bronchial affections alone accounted for 84 cases, and there were 10 admissions for pneumonia, with 2 deaths.

Diseases of the Digestive System.—There were 447 admissions and one death. The admission ratio, 128·0 per 1,000, is higher than that for the previous year by 21·1, and than the nine years' average rate by 33·4. Of the cases, 251 were treated for some affection of the mouth or throat, 77 for diarrhœa, 64 for dyspepsia, 34 for colic, and 9 for hepatic affection. The death was due to abscess of liver.

Diseases of the Lymphatic and Glandular System, with 81 admissions, gave a ratio of 23·2 per 1,000, above that in 1894 by 2·7, but below the average rate by 8·8.

Diseases of the Urinary System were the origin of 6 admissions, or a ratio of 1·7 per 1,000, below the last year's rate by ·5, and less than half the average ratio.

Diseases of the Generative System.—84 admissions are recorded, the equivalent ratio being 24·1 per 1,000, as compared with 25·9 in the year before, and 46·5, the average rate for nine years. The principal causes of sickness were balanitis 33, and orchitis 27 cases.

Diseases of the Organs of Locomotion.—There were 44 admissions. The ratio, 12·6 per 1,000, is fractionally above the previous year's rate, and higher than the average by 4·2. Of the cases, 33 were due to synovitis.

Diseases of the Connective Tissue caused 109 admissions, equal to 31·2 per 1,000, which is higher than that for the last year and than the average rate by 2·5, and 3·4 respectively.

Diseases of the Skin were rather more prevalent than usual, there being 246 admissions, or a ratio of 70·5 per 1,000, which is higher than that for 1894 by 10·0, and than the average rate by 11·4. Boils, ulcers, eczema, and itch were the most frequent causes of admission.

Injuries.—487 cases of injury are returned. The ratio of admission, 139·5 per 1,000, is higher than that for the preceding year by 5·5, and 29·1 above the average rate. There were 6 deaths, equal to 1·72 per 1,000. Under general injuries are recorded 2 cases of multiple injury caused by the collapse of a cook-house during a storm at Pietermaritzburg, at which place there was one death from accidental drowning; another death from drowning occurred

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at Simonstown, and one from multiple injury at Durban, the man being run over by a locomotive. Among the 485 cases of local injury were 146 of wound, 126 of contusion, and 104 of sprain. There was one death from gunshot wound, the man committing suicide while in a state of temporary insanity by shooting himself with a revolver, the other deaths being due to concussion of brain and fracture of skull respectively.

Invaliding.—There were 61 men invalided home during the year, or a ratio of 17·48 per 1,000, which is higher than that for the previous year by 1·72, but below the average rate for the preceding decennium by 9·58. The rate in the Cavalry was 4·70 per 1,000, as compared with 8·97 in the year before, that in the Artillery being 31·72 as against 23·60; in the Engineers it was 17·86, as compared with 9·71, and in the Infantry 17·83, as against 17·18 in 1894. As to the ages at which invaliding occurred, 4 men, or 21·16 per 1,000, were under 20 years of age, 33, or 18·34 per 1,000, were between 20 and 25 years, 21, or 18·99, were in their next quinquennium, 3, or 10·49, were between 30 and 35, and 1 man, or 9·01 per 1,000, was more than 35 years of age. In the previous year the highest invaliding rate occurred among men between 20 and 25 years, and there was no invaliding among those under 20 or over 35 years of age. With regard to service in the Command, 17 men, or 13·82 per 1,000, were invalided while in their first year, 11, or 11·08, were in their second, 13, or 16·79, were in their third, 9, or 35·57, were in their fourth year, and 12, or 49·79 per 1,000, had been in the Command for five years or longer. In 1894 the highest ratio occurred among men in their fourth year, and the lowest among those of five years' service and upwards. Diseases of the circulatory system caused the invaliding of 15 men, or 4·30 per 1,000, nearly one-fourth of the whole, and there were 13 men sent home on account of nervous affections, equal to a rate of 3·73 per 1,000 (including 4 cases of mental disorder); among other causes were secondary syphilis, with 7 men, and debility and tubercular diseases, with 5 each.

The number of men discharged as medically unfit for further service was 44, the equivalent ratio, 12·61 per 1,000, being above that for the previous year by 1·58, but below the corresponding average ratio for the preceding ten years by 3·42. The principal causes of discharge by invaliding were diseases of the circulatory system, 14 cases, or 4·01 per 1,000, diseases of the nervous system, 9 cases, or 2·58 per 1,000 (including 1 case of mental disorder), and debility and tubercular disease, 4 cases each, or 1·15 per 1,000.

Officers.—In an average strength of 139 there were 78 cases of sickness and 2 deaths, being in the ratios of 561·1 and 14·39 per 1,000, as compared with 578·6 and *nil* in 1894. The chief causes of admission were injuries, influenza, febricula, and diarrhœa, and there was one case of enteric fever. There was one death each from tubercle of lung and syncope, and 5 officers were invalided, 2 for debility, and 1 for varix, hernia, and cystitis respectively.

Women.—The average strength was 205, and there were 163 attacks of illness and 2 deaths; the ratio of prevalence was therefore 795·1, and that of mortality 9·76 per 1,000, the former being higher by 196·1 and the latter by 4·81 than corresponding rates in the previous year. Among the cases treated were 27 of debility, 20 of dyspepsia, 12 of influenza, 11 of sore throat, 7 of febricula, and 1 of enteric fever, and there were 23 of diseases of the generative system. One death each occurred from enteric fever and tubercular disease of the lung.

Children.—There was an average strength of 396, and 367 cases of sickness were treated, or a ratio of 926·8 per 1,000, as compared with 589·4 in the year before; 11 deaths occurred, giving a ratio of 27·78 per 1,000, as against 22·67 in 1894. The cases included 86 of bronchitis, 35 of whooping cough, 28 of sore throat, 25 of diarrhœa, 21 of measles, 14 of chicken pox, and 4 of enteric fever. The deaths were 2 each from tubercle of intestines, infantile convulsions and bronchitis, and 1 from whooping cough, enteric fever, debility, tubercle of glands, and diarrhœa respectively.

Sanitary Conditions.—The Principal Medical Officer, Surgeon-Colonel J. W. Maxham, M.D., reports that the new system of drainage for Cape Town was being proceeded with, and would in time be followed by an improvement in the health of the town. The dry-earth system of conservancy is now said to work fairly well. The situation of the hospital is referrred to as unsuitable, and it is suggested that increased hospital accommodation be provided at Wynberg,

and the Cape Town hospital made use of for other purposes. The mortuary at the Cape Town hospital was repaired, and an objectionable open channel therefrom replaced by a covered drain, and the bathing accommodation was doubled by dividing the bath-rooms each into two. At Wynberg the situation of the camp is considered admirable in every way, and the conservancy system works satisfactorily; the absorption pits referred to in last year's report are a great success. At the station hospital the accommodation was far below requirements, and a separate barrack hut was appropriated for hospital use. At Simonstown the barracks are old, but there was no overcrowding and the men were healthy. The arrangements for cooking at the non-dieted hospital were inadequate, and a proper kitchen was asked for. The sanitary condition of the station was satisfactory. At Pietermaritzburg and Eshowe the sanitary conditions are said to be much improved; it is recommended that khaki clothing be issued for wear during the summer heats. The accommodation for sick in hospital was found insufficient, and marquees were used to supply the deficiency. Improvements were made in the cooking arrangements at Eshowe, the ceilings of the barrack rooms lined with canvas, and the source of the water supply protected from contamination by the erection of a wire railing. At St. Helena the medical officer in charge reports that the sanitary condition of the barracks and hospital was generally very satisfactory; the water supply failed slightly twice during the year, but by careful conservancy was made sufficient.

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IX.—ON THE HEALTH OF THE TROOPS SERVING IN THE ISLAND OF MAURITIUS.

Sickness and Mortality.

I.—European Troops.

Mauritius.

The average strength of warrant officers, non-commissioned officers and men was 657, and the force consisted of the 24th Company, Western Division, Royal Artillery, a detachment of the Royal Engineers, the headquarters and four companies of the 1st Battalion Royal Highlanders, and detachments of the Medical Staff Corps and Garrison Staff.

The more important of the statistics of sickness and mortality among the troops are exhibited in the following table:—

1895. Average Strength.	Admissions.	Deaths			Invalids		Average constantly Sick.	Ratio per 1,000 of Strength.				
		In the Command.	Of Invalids.	Total.	Sent Home.	Finally Discharged.		Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
657	1,018	11	—	11	38	13	55·76	1549·4	16·74	57·84	19·78	84·87

Comparing the above with a similar table for the previous year, it is observed that the admission, mortality, and constantly sick rates have increased by 247·5, 6·45, and 12·97 per 1,000, and in comparison with the corresponding average rates for the preceding ten years these ratios show an increase of 94·3, ·38, and 13·52 respectively. The average sick time to each soldier was 30·98 days, longer than in 1894 by 4·74, and than the decennial average period by 4·94 days, while the average duration of each case of sickness, 19·99 days, was fractionally shorter than in the preceding year, but 2·09 days longer than the average.

The principal statistics of the various corps which served in the Command during the year are given in Abstract XXV. The admission and constantly sick rates in the Artillery were 1832·2 and 97·76, and in the Infantry 1536·5 and 85·13 per 1,000, all considerably higher than in 1894. In the Engineers the admission rate, 689·7 per 1,000, is lower than that for the previous year, but the constantly sick rate, 39·31, is higher. There were 3 deaths in the Artillery, or 20·98 per 1,000, against 30·30 in the year before; 6, or 12·88 per 1,000 in the Infantry, as compared with 6·80; and 2, or 105·26 per 1,000 in men of other corps. There was no death in the Engineers.

As to the influence of age on the sickness and mortality among the troops, it has been calculated that the admission rate among men under 20 years of age was 608·7 per 1,000, that among men between 20 and 25 being 1869·4; the ratio among men in the next quinquennium of age fell to 1205·3, the lowest, 564·5, occurring in men of 30 years of age and upwards. Compared with similar calculations for the preceding year it is observed that the ratios for men under 20 and over 30 years have declined, while those relating to men between 20 and 25 and 25 and 30 years of age have increased. There were 8 deaths, or 19·00 per 1,000, among men between 20 and 25, 2, or 13·25, among those between 25 and 30, and 1 death, or 16·13 per 1,000, occurred in a man of more than 30 years of age. With regard to service in the Command, it is found that the admission rate among men in their first year was 1797·9, falling to 1422·9 among those in their second, and 500·0 among those in their

third years; the strength of men who had been more than three years in residence was too small to be worthy of notice. Mortality was highest, 18·13 per 1,000, among men in their first year, dependent upon 7 deaths, 3 deaths, or 14·93 per 1,000, occurred in men in their second year, and there was 1 death, or 14·71 per 1,000, in a man who was in his third year of service in the Command.

The principal statistics of sickness, mortality, and invaliding arranged according to the different groups and orders of diseases are given in Abstract X.

GENERAL DISEASES.—*Diseases dependent on Morbid Poisons.—Enteric fever* caused 15 admissions and 6 deaths as compared with one non-fatal case in the year before. The admission ratio, 22·8 per 1,000, is in excess of the previous year's rate by 21·1, and of the average rate for the preceding nine years by 10·2. The death rate was 9·13 per 1,000, as against *nil* and 4·41 in the two comparisons. It is stated that the disease was prevalent throughout the island during the year, and that at Port Louis, where 7 of the cases originated, the causes of the disease are so numerous and obvious that it is a matter of wonder to those acquainted with the local conditions that it does not occur more extensively among the troops. The cases originating at Curepipe are more difficult to account for, as the camp is in a good sanitary condition, but the milk and water supplies are not, it is believed, above suspicion; a new water supply is being laid on and another system of milk supply commenced. *Dysentery*, with 13 cases, generally of a mild type, gave a ratio of 19·8 per 1,000, as compared with 10·3 in 1894 and 22·5, the nine years' average rate; no death occurred.

Malarial Fevers were the cause of 460 admissions and 3 deaths, equal to ratios of 700·1 and 4·57 per 1,000. The admission ratio is higher than that for the previous year by 104·9 and above the average by 98·3, while the mortality rate is below that for 1894 by ·57, but above that for the preceding nine years by 1·26. The ratio of constant inefficiency from these fevers was 29·92, higher in the two comparisons by 3·14 and 4·96 per 1,000 respectively. The cases were returned as follows:—ague 294, remittent fever 159, and malarial cachexia 7; 2 of the deaths were due to remittent fever and 1 to malarial cachexia.

Venereal Diseases.—Primary syphilis gave rise to 24 admissions, or a rate of 36·5 per 1,000, below the last year's ratio by 18·4. Including the sickness from simple venereal ulcer, for which there were 14 admissions and ·91 constantly sick, the admission ratio for primary venereal sores was 57·8, lower than in the year before by 19·4 and below the nine years' average rate by 30·8. *Secondary syphilis*, with 27 admissions, gave a ratio of 41·1 per 1,000, below the previous year's rate by 3·5, but 11·5 above the average. *Gonorrhœa* was the cause of 63 admissions, the ratio, 95·9 per 1,000, being higher than in 1894 by 8·4, but below the average rate by 8·2. Taking these various forms of venereal disease together, it is found that the total admission ratio equalled 194·8 per 1,000, which is 14·5 less than that for the year before, and 27·5 below the average rate for the preceding nine years; the total rate of constant inefficiency, 17·27, is, however, higher in the former comparison by 1·70 and in the latter by 1·71.

Alcoholism.—There were 3 admissions as compared with 1 in the previous year. No case of delirium tremens is recorded.

Debility.—22 admissions are returned, the ratio, 33·5 per 1,000, being much in excess of that for the preceding year, when there were only 5 admissions. The greater number of the cases were consequent upon severe attacks of malarial and enteric fevers.

Rheumatism caused 12 admissions, including one for rheumatic fever, equal to a ratio of 18·3 per 1,000, which compares favourably with 24·0 in 1894 and 21·6, the average rate. *Tubercular diseases* were represented by 4 cases of lung affection; the ratio per 1,000 was 6·1, in excess of the last year's rate and the average by 4·4 and 3·4 respectively. Under *other diseases* of this group were two cases of non-malignant new growth.

LOCAL DISEASES.—*Diseases of the Nervous System* gave rise to 11 admissions, or a ratio of 16·7 per 1,000, which is greater than that for the previous year by 8·2 and than the average rate for nine years by 4·1. The

Mauritius. cases comprised 3 of vertigo, 3 of melancholia, 2 each of paralysis and epilepsy, and 1 of meningitis, the latter proving fatal.

Diseases of the Eye contributed 11 admissions, being in the ratio of 16·7 per 1,000, above the last year's rate by 3·0 and above the average by 4·1. Conjunctivitis was the principal cause of admission. *Diseases of other organs of special senses* were the origin of 24 cases, the ratio, 36·5 per 1,000, being in excess of that for the year before by 5·6, and greater than the average rate for the preceding nine years by 22·4. Inflammation of the external meatus accounted for 18 of the admissions, and there was 1 case of nasal affection.

Diseases of the Circulatory System.—There were 7 admissions under this heading, and 1 death occurred. The ratio of prevalence was 10·7 per 1,000, above the previous year's rate by 3·8, but below the average by 5·4. The cases comprised 4 of palpitation, 2 (one fatal) of valvular disease of the heart, and 1 of varix.

Diseases of the Respiratory System.—27 admissions are recorded, or a ratio of 41·1 per 1,000, which is in excess of the previous year's and the average rates by 22·2 and 19·5 respectively. Bronchitis alone caused 25 of the admissions, the remainder being for asthma.

Diseases of the Digestive System gave rise to 73 admissions, the equivalent ratio being 111·1 per 1,000, above that for the year before by 1·3, but below the average rate by 5·4. Among the cases were 21 of various forms of sore throat, 18 of diarrhœa, 14 of dyspepsia, and 4 of hepatic affections.

Diseases of the Lymphatic and Glandular System, with 7 admissions, were much less frequent than usual, and *diseases of the urinary system* caused 3 admissions, the ratio, 4·6 per 1,000, being less than half that for the last year and fractionally below the average. There were 19 admissions for *diseases of the generative system*, or a ratio of 28·9 per 1,000, which is below the previous year's rate and the average for nine years by 10·5 and 32·6 respectively. Simple venereal ulcer caused 14 of the admissions. For *diseases of the organs of locomotion* there were 12 admissions, equal to a ratio of 18·3 per 1,000 as compared with 8·6 in 1894 and 7·1, the average rate. Three-fourths of the cases were due to synovitis. Under *diseases of the connective tissue* 15 admissions are returned, the ratio, 22·8 per 1,000, being in excess of both the previous year's and the average rates, by 12·5 and 2·5 respectively. *Diseases of the skin.*—71 admissions are recorded, the equivalent ratio being 108·1 per 1,000, above the rate for the year before by 66·9 and in excess of the average rate by 54·3. Itch, ulcer, and eczema were the chief causes of admission.

Injuries.—88 cases of injury occurred, of which 67 were due to sprains, wounds, and contusions. The ratio of prevalence was 133·9 per 1,000, which is higher than that for the previous year by 22·4 and than the average rate by 27·6.

Invaliding.—38 men were invalided to England during the year, the ratio, 57·84 per 1,000, being higher than in 1894 by 37·26 and above the average rate for the preceding ten years by 4·07. None of the men invalided were under 20 years of age, 24 men, or 57·01 per 1,000, were between 20 and 25, 11, or 72·85, were in their next quinquennium, and 3, or 48·39 per 1,000, were men of 30 years of age and upwards. All these ratios are considerably higher than those for the preceding year. As to service in the Command, 23 men, or 59·59 per 1,000, were in their first year, 12, or 59·70, were in their second year; and 3 men, or 44·11, were in their third year. In the previous year three-fourths of the men invalided were in their second year of service. The causes of invaliding were malarial fevers in 14 cases, debility in 7, melancholia in 4, and there were 3 cases each of tubercle of lung and aural affection, 2 of secondary syphillis, 2 of valvular disease of the heart, and one case of dysentery, chorea, and fracture respectively. There were 13 men discharged the service as medically unfit, or a ratio of 19·78 per 1,000, above the corresponding rate in the year before by 6·06, and above the decennial average rate by 1·99. Mental affection was the cause in 6 cases, and there were 2 men discharged on account of tubercle of lung, and one each for secondary syphilis, chorea, aural disease, valvular disease of heart, and fracture.

Officers.—In an average strength of 32 there were 15 cases of sickness, including 8 of malarial fever. The ratio of prevalence was 468·7 as compared with 441·2 in 1894. One officer died from congestion of liver.

Women.—The average strength was 43, and there were 15 cases treated, equal to a ratio of 348·8 per 1,000, above the corresponding rate in the previous year by 132·6. Malarial fever caused 9 of the admissions, and there was one fatal case of enteric fever. *Mauritius.*

Children.—There were 16 cases of sickness in an average strength of 62, the ratio per 1,000 being 258·1, below the last year's rate by 17·7. There was no death. The cases included 8 of malarial fever, 3 of measles, and 3 of diarrhœa.

Sanitary Conditions.—The Senior Medical Officer, Brigade-Surgeon-Lieutenant-Colonel J. Fraser, M.D., reports that "the general sanitary condition "of Port Louis is still bad, and continues to have a prejudicial effect on the "health of the troops in the Command, which is minimized as far as possible "by frequent reliefs of the detachment necessarily there for military "purposes. From June to December Port Louis is fairly healthy except for "those who frequent the town itself and are incautious as regards food and "drink. The new drainage system for that portion of Port Louis which was "destroyed by fire in 1893 is now in progress, and it is hoped that an "improvement in the health of the population will follow, and also that the "Line Barracks will profit considerably from a sanitary point of view by "being effectively drained in conjunction with the town drainage. Sanitary "works are in active progress in Fort George—filling in moats and hollows, "levelling useless earthworks, improving means of removal of sewage, &c., "which should lead to improvement in the health of the occupants. The "great point is still untouched, viz., subsoil draining by pumping or other-"wise. Curepipe has, during the year, been created a township with "municipal authority; much improvement may be expected to follow this "innovation, and there have been signs of increased activity towards placing "the town on a good sanitary footing. The Mare-aux-Vacoas water supply "has been laid on and is gradually being taken into use, the roads have been "attended to and in places widened and generally much improved; "scavenging is also better attended to." Among the services which were carried out during the year were:—At Port Louis the mortuary floor at the station hospital was concreted, and three Pasteur-Chamberland filters were to be shortly taken into use at the Line Barracks. At Fort George the system of foul drainage was being remodelled, new latrines and ablution rooms with separate drainage to the sea were provided for troops who may occupy the retrenchment quarters, and four casemates (married quarters) were concreted under the floors. At the Fort Adelaide Citadel the drains generally were being overhauled, and the ventilators in the officers' quarters improved. At Curepipe a drying room for men's clothing and a bread and meat store were provided, and a large recreation room was being erected.

Among the recommendations made during the year were:—At Port Louis:—That the Line Barracks be thoroughly drained and sewered, and that this be taken up in connection with the town drainage now in progress; that the latrines for Asiatics be remodelled; that the open drain from the sink in the mortuary at the station hospital be converted into an underground drain, and that a bath-room be provided for European troops. At Fort George:—The provision of a pure water supply; a system of subsoil drainage, and a more perfect system of surface drainage; the construction of light wooden huts on the ramparts or other elevated position; the filling in of unnecessary hollows, and the levelling of superfluous interior earthworks. At Curepipe it is recommended that the latrine tubs be so arranged as to fit up close to the seats; that baths for private ablution be provided for Nos. 1 and 7 huts; at least two more drying rooms for men's clothing, and bath accommodation, wash-house, and drying room for married quarters. It is also proposed to increase the latrine accommodation for the married people, to enlarge the guard-room, to concrete and extend the surface drains, and to fill in a pit in the vicinity of the married quarters. A special report was submitted respecting the erection of a destructor for excreta, &c. at the station hospital, where a disinfecting chamber is also required. The enlargement of the medical officer's office, and the construction of an office for the senior medical officer, an itch ward, &c. were also suggested. The rations, which were much improved during the year, would be better appreciated if mutton could be issued sometimes instead of beef, which is occasionally of poor quality. Vegetables are good

Mauritius. and abundant, and the clothing suitable, although it has been recommended that tropical clothing be supplied for wear during the hot weather, particularly at St. Louis. It is regretted that there is no gymnasium on the island.

II.—Non-European Troops.

The Asiatic troops serving in the Command were the Mauritius Companies, Royal Artillery, average strength 164, composed of men enlisted in India, and the Mauritius Company, Royal Engineers, average strength 40, raised locally from men of various mixed races, the former corps occupying the Line Barracks and the latter Fort George, Port Louis. The total strength was therefore 204, and there were 413 cases of sickness and 5 deaths, the equivalent ratios being 2024·5 and 24·51 per 1,000 respectively. There was an average constant sickness of 13·72 men, or 67·25 per 1,000. The prevailing diseases were malarial fevers, which accounted for 183 cases and 1 death. There were 10 admissions for dysentery and (including 4 cases of simple venereal ulcer) 29 for venereal diseases. Among other admissions may be mentioned 12 for rheumatism, 28 for bronchitis, 17 for diarrhœa, 7 for enlargement of the spleen, and 61 for various skin affections, and one death occurred from hepatitis. Two men were invalided, one on account of syphilis and one for asthma. There was an average strength of 17 women, of whom only one came under treatment, and among 24 children there were 5 cases treated, including 2 of measles.

X.—ON THE HEALTH OF THE TROOPS SERVING IN THE ISLAND OF CEYLON.

Sickness and Mortality.

1.—European Troops.

Ceylon.

The average strength of warrant officers, non-commissioned officers, and men was 1,350. The force comprised No. 16 Company, Southern Division, Royal Artillery, which proceeded to Malta in March, on relief by No. 6 Company from that station, and No. 37 Company, formed from a portion of No. 6 Company after arrival; half the 41st (Fortress) Company, Royal Engineers; the 2nd Battalion Royal Warwickshire Regiment, and detachments of the Army Service, Medical Staff, Ordnance Store and Army Pay Corps, and Garrison Staff. Drafts of various corps arrived from England during the months of February and November. At Colombo were stationed No. 6 Company, Southern Division, Royal Artillery, the headquarters of the 2nd Battalion Royal Warwickshire Regiment, and a few of the Royal Engineers; at Trincomali were No. 37 Company, Southern Division, Royal Artillery, the greater portion of the Royal Engineers, and a detachment of the infantry regiment; while at Kandy the garrison was mainly composed of infantry; No. 16 Company, Southern Division, Royal Artillery, before leaving the island in March, was divided between Colombo and Trincomali, and the men of other corps were distributed according to the requirements of the various stations.

In the following table are given the more important of the statistics of sickness and mortality among the troops:—

1895. Average Strength.	Admissions.	Deaths			Invalids		Average constantly Sick.	Ratio per 1,000 of Strength.				
		In the Command.	Of Invalids.	Total.	Sent Home.	Finally Discharged.		Admissions.	Deaths.	Invalids Sent Home.	Invalids finally Discharged.	Constantly Sick.
1,350	1,350	11	—	11	22	14	82·97	1006·7	8·15	16·30	10·37	61·46

Comparing the above with the corresponding table for the previous year, an increase of 69·8 per 1,000 is observed in the admission rate and one of 7·34 in the ratio of constant inefficiency, while the mortality rate has declined by 2·48; in comparison with the corresponding average ratios for the preceding ten years a decline of 9·0 per 1,000 has occurred in the admission and one of 3·50 in the death rates, but an increase of 4·07 in the ratio constantly sick. The average sick time to each soldier, 22·43 days, is longer than in 1894 by 2·67, and the average duration of each case of sickness, 22·28 days, is longer by 1·19; compared with the average periods for the previous decennium, both have increased, the former by 1·48 and the latter by 1·66.

In Abstract XXV. will be found the more important statistics of the various regiments and corps, from which it will be seen that the admission rate for the Artillery was 1104·4 per 1,000, that for the Engineers 840·0, for the Infantry 1032·5, and that for Garrison Staff and Departments 97·6. The mortality rate was 12·05 in the Artillery, dependent upon 3 deaths; there were 3 deaths in the Engineers, or 40·0 per 1,000, and 5, or 5·08 per 1,000, in the Infantry, no death occurring among men of other corps. The constantly sick rates for the four branches of the service named were 65·34, 33·07, 65·03, and 4·15 per 1,000 respectively.

Ceylon.

It is found that the admission rate among men under 20 years of age was 346·9 per 1,000, that among men between 20 and 25 being 1105·8; among men in the next quinquennium it was 1057·9, and among those of 30 years of age and upwards the ratio equalled 389·4 per 1,000. In the previous year the highest admission rate at any age period was 1,228·2 among men between 20 and 25, and the lowest, 578·4, among those in the next group. The mortality occurred as follows:—1 death, or 20·41 per 1,000, among men under 20, 4 deaths, or 4·65 per 1,000, among men between 20 and 25, 5, or 15·24 per 1,000, among men between 25 and 30 years, and 1 death, or 8·85 per 1,000, in a man of more than 30 years of age. In 1894 there was no death among men under 20 years, and the highest ratio was among those of 30 years of age and upwards. In relation to the influence of service in the Command on the health of the troops it has been calculated that the admission rates were, 632·8 per 1,000 among those in their first year, 1387·1 among those in their second year, 1005·5 among those in their third year, and 1082·8 among men who had been more than three years in the Command. The sequence of ratios is not similar to that observed in the year before, when the highest, 1104·9, occurred among men in their first year, and the lowest, 608·3, among those who had completed their third year. There were 3 deaths, or 8·47 per 1,000, among recent arrivals, 3, or 9·68, among men in their second year, 3, or 8·33, among men in their third year, and 2, or 6·13, among men who had been 3 years or more in residence. In the preceding year the mortality rates were *nil* in the first two periods, and 15·47 and 50·00 per 1,000 respectively among men in their third year and those with more than that service.

In Abstract XI. will be found the principal statistics of sickness and mortality according to groups and orders of diseases.

General Diseases.—*Diseases dependent on Morbid Poisons.—Eruptive fevers* were represented by a single case of epidemic rose-rash. *Enteric fever* caused 5 admissions, none of which proved fatal; the ratio was 3·7 per 1,000, as compared with 5·7 in 1894, and 8·6 the average rate for the preceding nine years. It is stated that in no case could the disease be traced to any sanitary defect in barracks, all being probably contracted in the native villages. There were 3 cases at Colombo and one each at Trincomali and Kandy.

Simple Continued Fever caused 97 admissions, being in the ratio of 71·9 per 1,000, which is higher than that for the year before by 38·6, and above the average rate for nine years by 7·2. The disease was of a mild type.

There were 33 admissions for *dysentery*, and 2 deaths resulted. The admission ratio was 24·4 per 1,000, as against 17·0 in the previous year and 20·0, the average rate.

Malarial Fevers accounted for 94 admissions, of which 6 were returned as remittent fever and the remainder as ague, there being 2 deaths from the former and 1 from the latter. The ratio of prevalence was 69·6 per 1,000, higher than in the last year by 16·4, and above the nine years' average by 32·9.

Under the head of *septic diseases* one case of erysipelas is recorded.

Venereal Diseases.—The admissions for *primary syphilis* were 120 in number, being in the ratio of 88·9 per 1,000, as compared with 79·4 in 1894. If to this be added the sickness from simple venereal ulcer, 66 admissions, and 5·41 men constantly sick, the total admission ratio for primary venereal sores was 133·8 per 1,000, above that for the previous year by 9·8, but 13·7 below the average for the preceding nine years. *Secondary syphilis*, with 62 cases, gave a ratio of 45·9 per 1,000, lower in the two comparisons by 12·9 and 9·7 respectively. *Gonorrhœa* was the cause of 155 admissions, or 114·8 per 1,000, below the last year's rate by 17·7 and less than the average by 19·4. Taking all these forms of venereal disease together, the total admission rate was 294·5 per 1,000, lower than in the year preceding by 20·8, and below the nine years' average by 42·8. The constant inefficiency from these affections was equal to 25·58 men per 1,000, higher in both comparisons by 1·65 and 2·84 respectively.

Parasitic Diseases were entirely absent, but there were 18 admissions for *alcoholism* as compared with only 5 in the preceding year; one case of delirium tremens is included.

Debility.—39 men were admitted under this heading; the ratio, 28·9 per 1,000, is higher than in 1894 by 21·1, and than the average rate by 13·7.

Rheumatism accounted for 38 cases, including 3 of rheumatic fever, or a ratio of 28·2 per 1,000, below the previous year's rate and the average by 20·7 and 3·2 respectively. *Ceylon.*

Only one admission is recorded for *tubercular disease*, as compared with 5 in the year before; the lungs were the organs affected.

The admissions for *other diseases* of Group D. were 16 in number, comprising 9 of anæmia with one death, 6 of papilloma, and 1 of lipoma.

Local Diseases.—*Diseases of the Nervous System.*—There were 5 admissions, including one of mental affection, the ratio, 3·7 per 1,000, being little more than half that for the year preceding, and 7·5 below the average. The cases were neuralgia 3, hemiplegia 1, and mania 1; no death occurred.

Diseases of the Eye contributed 19 cases, the ratio per 1,000, 14·1, being fractionally higher than in 1894, and above the average of nine years by 1·1. Conjunctivitis caused 15 of the cases. *Other organs of special senses* were represented by 20 admissions, of which 19 were for inflammation of the external meatus.

Diseases of the Circulatory System were the cause of 7 admissions, equal to 5·2 per 1,000, which is below the last year's rate by 7·6, and less than the average by 3·6, 5 of the cases being returned as due to palpitation, and one each to fatty degeneration and valvular disease of the heart. There was one death from fatty degeneration.

Diseases of the Respiratory System caused 16 admissions, equal to a ratio of 11·9 per 1,000, as compared with 34·0 in the year before, and 26·6, the average rate. Bronchitis furnished 13 cases, and asthma, pneumonia, and pleurisy one case each. There was no death under this heading.

Diseases of the Digestive System.—146 admissions and 1 death are returned. The ratio of prevalence, 108·2 per 1,000, is less than that for 1894 by 11·6, but more than the average rate for nine years by 5·6. The principal causes of sickness were diarrhœa 46 cases, dyspepsia 43, affections of the mouth and throat 27, and hepatic diseases 22. The death was due to abscess of liver.

Diseases of the Lymphatic and Glandular System caused 77 admissions, or a ratio of 57·1 per 1,000, higher by 14·6 than in the year before, but below the nine years' average rate by 5·6. The cases were all of inflammation or suppuration of the lymphatic glands.

Diseases of the Urinary System.—There were no admissions under this heading.

Diseases of the Generative System gave 82 admissions, of which 66 were for simple venereal ulcer and 10 for orchitis. The ratio per 1,000 was 60·8, below last year's rate by 4·4 and 38·0 lower than the average.

Diseases of the Organs of Locomotion contributed 13 cases, the admission ratio being 9·6 per 1,000, in excess of the previous year's and average rates by 6·1 and 3·3 respectively. Most of the admissions were due to synovitis.

Diseases of the Connective Tissue caused 60 admissions, or 44·4 per 1,000, which ratio is higher than in the year preceding by 6·1, and above the average of nine years by 19·7.

Diseases of the Skin, with 98 admissions, gave a ratio of 72·6, as compared with 60·2 in 1894, and 69·8, the average. The chief causes of admission were ulcers, boils, eczema, and ringworm.

Injuries were 128 in number, and caused 3 deaths, the admission ratio, 94·8 per 1,000, being above that for the last year by 24·6, but below the average by 1·4. One admission for general injury is recorded under burns and scalds. One man was accidentally drowned whilst bathing, and there was a case of suicide by hanging, which occurred while the man was awaiting transfer to cells after conviction by court-martial. There were 127 admissions for local injury, mostly contusions, wounds, and sprains, and there was one death, suicidal, a patient in hospital cutting his throat with a razor, the apparent motive being disappointment at not receiving the money to purchase his discharge.

Invaliding.—The number of men invalided to England was 22. The ratio, 10·37 per 1,000, is lower than that for 1894 by 6·38, and than the decennial average rate by 4·39. In the Royal Artillery 6 men were invalided, or 24·10 per 1,000, in the Royal Engineers the rate was *nil*, while 16 men, or 16·24 per 1,000, were sent home from the 2nd Battalion Royal Warwickshire Regiment.

Ceylon. None of the invalids were under 20 years of age; 14, or 16·28 per 1,000, were between 20 and 25, 7, or 21·34 per 1,000, were between 25 and 30, and 1, or 8·85 per 1,000, was over 30 years of age. In the preceding year the highest rate occurred among men over 30 years. As to service in the Command, 2 men, or 5·65 per 1,000, were in their first year; 6, or 19·35, were in their second year; 5, or 13·89, in their third year; and 9 men, or 27·61 per 1,000, had served for more than three years in Ceylon. In the year before, the lowest rate was 3·49 per 1,000 among men in their first year, increasing through the various periods to a ratio of 50·00 among those with more than three years' service. The causes of invaliding were secondary syphilis 6 cases, rheumatism 3, tubercle of lung 2, and dysentery, gonorrhœa, debility, hemiplegia, mania, valvular disease of heart, palpitation, aneurysm of aorta, hepatitis, contusion of eye with displacement of lens, and fracture, one case respectively. The number of men finally discharged as medically unfit was 14, equal to a ratio of 10·37 per 1,000, above the last year's rate by ·45, but below the average rate for the preceding ten years by 2·15. Two men were discharged on account of secondary syphilis, 3 for diseases of the circulatory system, 3 for tubercular disease, and the remainder for various disabilities.

Officers.—The average strength was 51, and the number of cases of sickness 30. There was no mortality nor invaliding. The ratio of sickness, 588·2 per 1,000, was less than in the preceding year by 126·1. Among the cases treated were 10 of simple continued fever, 4 of malarial fever, and 5 of injuries.

Women.—In an average strength of 65 there were 79 women treated, of whom 1 died from anæmia. Debility alone furnished 35 of the cases, and among the remainder were 8 of malarial fever, 7 of simple continued fever, 5 each of dyspepsia and diarrhœa, and 4 of bronchitis. The ratio of prevalence, 1215·4, is higher than that recorded for 1894 by 24·9, the death rate, 15·38 per 1,000, being lower by 32·24.

Children.—There were 121 attacks of illness among 104 children, of whom 2 died. The admission and mortality ratios, therefore, were 1163·5 and 19·23 per 1,000 respectively, the former being higher by 97·9 and the latter lower by 13·56 than in the year before. The cases included 20 of simple continued fever, 18 of digestive disorders, 16 of bronchitis, 12 of conjunctivitis, 11 of debility, and 7 of dysentery. The deaths were one each from infantile convulsions and teething.

Sanitary Conditions.—The Senior Medical Officer, Brigade-Surgeon-Lieut.-Colonel A. W. Duke, M.D., states that no sanitary defects were reported which would affect the health of the troops; but that at his inspection in December he noticed that at Fort Frederick, Trincomali, the water supply, obtained from open wells, was liable to pollution, and recommended that the wells be closed in and pumps with Pasteur-Chamberland filters fixed, for which service plans and specifications were being prepared. The surface drainage at this fort was to be improved during 1896. At Trincomali the water supply is limited, and the bathing accommodation deficient; it was recommended that bathing places in the sea should be provided by the erection of stakes, &c., as a protection against sharks. The open well at Mount Lavinia should also be covered in and provided with a pump and filter, and the superficial area in some of the barrack rooms was not sufficient, concerning which representations were made. At Colombo the lake opposite the hospital, married quarters, and Echelon Barracks, is used as a washing place by the dhobies, and as a bathing place by the natives of the neighbourhood. The military authorities have no control over it, but it is stated that the General Officer Commanding made frequent representations to the Governor and to the municipal authorities, with the result that the washing and bathing has been stopped opposite the Echelon Barracks. It is hoped that the old chatties, containing sand and charcoal, may be replaced by filters of a more satisfactory type. During the year the following improvements were made:—Urinal and latrine built for the sergeants of the Royal Artillery, and a revetment constructed on bank of lake at Station Hospital, Colombo. At Kandy an ablution room at the married quarters was converted into two bath-rooms, and at Trincomali the surface drainage at Sober Island was extended. No change is reported regarding the rations or clothing of the troops.

II.—Asiatic Troops.

The Asiatic troops comprised the two Ceylon companies, Royal Artillery, average strength 183, and the Ceylon Company, Submarine Miners, Royal Engineers, average strength 40, the total strength, therefore, being 223.

A portion of the Artillery were stationed at Colombo, and the remainder, with the Engineers, at Trincomali.

There were 268 cases of sickness, equal to a ratio of 1201·8, an increase of 297·8 on that for the preceding year, and 6·35 men were constantly sick, the ratio, 28·47 per 1,000, being higher than in 1894 by 3·32. Two deaths occurred, one each from dysentery and pneumonia, and one man was invalided on account of debility.

The average sick time to each soldier, 10·39 days, was longer by 1·21, and the average duration of each case, 8·65 days, was shorter by a day and a half than in the year before. Cutaneous affections caused 89 admissions, and among the remainder were 34 cases of bronchitis, 26 of injury, 26 of malarial fever, 14 of simple continued fever, and 13 of venereal diseases.

XI.—ON THE HEALTH OF THE TROOPS SERVING IN CHINA.

Sickness and Mortality.

I.—European Troops.

China.

The average strength of the troops serving in the Command during the year was 1,515. The composition of the force was as follows:—Two Companies of the Royal Artillery, the 12th and 35th Companies, Southern Division; the 1st Battalion Rifle Brigade; and detachments Royal Engineers, Army Service Corps, Medical Staff Corps, Ordnance Store Corps, Army Pay Corps, and Garrison Staff throughout the year.

The subjoined table gives the principal statistics of sickness and mortality among these troops:—

1895. Average Strength.	Admissions.	Deaths			Invalids		Average constantly Sick.	Ratio per 1,000 of Strength.				
		In the Command.	Of Invalids.	Total.	Sent Home.	Finally Discharged.		Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
1,515	2,096	20	—	20	81	24	111·18	1383·5	13·20	53·46	15·84	73·39

Comparing the statistics of sickness and mortality with those in the previous year, a decrease of 23·8 per 1,000 has occurred in the ratio of admission, one of 4·78 in that of death, and one of 4·58 in that of constantly sick; but in comparison with the corresponding average ratios for the previous ten years an increase of 173·9 per 1,000 is observed in the admission ratio, one of 1·56 in the mortality rate, and one of 15·42 in the ratio of constant inefficiency through sickness. The average sick time to each soldier was 26·78 days, being shorter than in the previous year by 1·68, but longer than the corresponding average period for the preceding ten years by 5·62 days. The average duration of each case of sickness, 19·36 days, was shorter than in the preceding year by ·86 of a day, but longer than the decennial average period by 1·86 days.

The health statistics of individual corps will be found in Abstract XXV. Among the Companies of Artillery No. 12 Company, Southern Division, gave the highest rates of sickness and mortality; but taking the Artillery as a whole the admission ratio was 1376·7, the death rate 27·40, and the constantly sick rate 78·60, each of which shows a considerable increase as compared with the corresponding ratios in the previous year. The 1st Battalion Rifle Brigade gave an admission rate of 1543·8, a death rate of 11·67, and a constantly sick rate of 80·64 per 1,000. As in previous years the ratios both of admission and constantly sick were low in the detachments Royal Engineers and Departmental Corps.

The highest ratio of admission according to age was 8466·7 per 1,000 among men under 20 years of age, due to 127 admissions out of an average annual strength of 15; the next highest, 1422·2, was among men between 20 and 25 years of age; among men between 25 and 30 years of age the admission rate was 1291·8, and among men over 30 years of age it was 802·5. In the preceding year the highest admission rate was among men between 20 and 25 years of age. Mortality on the other hand was *nil* among men under 20 years of age, 12·97 among men between 20 and 25 years of age, 14·28 among men between 25 and 30, and 12·34 per 1,000 among men over 30 years of age.

Taking length of service in the Command, it is observed that a high ratio of admission, 1477·0 per 1,000, occurred among men in their first year of service in the country; among men in their second year of service the admission ratio fell to 1156·9 per 1,000, among men in their third to 574·5, and among men with over that service to 222·2 per 1,000. The mortality rate among men in their first year's service in the Command was 14·55, and among men in their second year of service it was 9·80 per 1,000. There was no mortality among men who had been longer in the Command than two years. *China.*

The admissions, deaths, invaliding, &c., according to the different groups and orders of diseases are shown in Abstract XII.

General Diseases.—*Diseases dependent on Morbid Poisons.—Eruptive fevers* caused no admission during the year. Five cases of *enteric fever* are returned as compared with *nil* in the preceding year. Of the cases, two occurred in the Rifle Brigade, two in the Royal Artillery, and one in the Royal Engineers, all the men coming from different barracks. No insanitary condition could be discovered in the barracks or their surroundings which would account for the occurrence of the disease. Two of the five men attacked died. *Simple continued fever* caused 11 admissions, as compared with 4 in 1894. Three cases of *cholera* are returned, two of which terminated fatally. Every endeavour was made to account for their occurrence but to no effect, and there were no cases of the disease among the civil population at the time. *Dysentery* was the cause of 16 admissions, equal to a ratio of 10·6 per 1,000, which is lower than the corresponding rate for the previous year by 7·4, and than the average rate of the preceding nine years by 3·6 per 1,000. One case proved fatal.

Under *other diseases* of this sub-group 38 cases of influenza and one case of mumps are returned.

Malarial Fevers.—719 admissions and 6 deaths are returned, being in the ratios of 474·6 and 3·96 per 1,000, which are above the corresponding ratios in the previous year by 20·9 and ·50, and also above the similar average rates for the preceding nine years by 16·9 and 1·45 respectively. The ratio of constant inefficiency on account of these fevers was 16·40 per 1,000, an increase of ·80 on the previous year's rate, and of 3·82 on the average. Of the total number, 136 cases, with 4 deaths, are returned as remittent fever, 16 as malarial cachexia, and the remainder, with 2 deaths, as ague. With regard to the difference in these figures for the two years the Principal Medical Officer, Surgeon-Colonel A. F. Preston, M.B., states that "the "insanitary condition of Victoria, and the abominable stenches in which "it abounded, probably lowered the standard of health, and if they did "not actually cause, they at least predisposed to the occurrence of sickness. "These stenches were in a great measure due to the absence of flushing of "the drains and sewers owing to the insufficiency of water—the rainfall for "the year having been 35 inches below the average, and 15 below the l "lowest recorded."

Septic Diseases caused 2 admissions, one case of erysipelas and one of septicæmia. In the preceding year there was no admission for these diseases.

Venereal Diseases.—The admissions for *primary syphilis* were 67 in number, equal to a ratio of 44·2 per 1,000, as compared with 67·8 in the previous year. Simple venereal ulcer caused 156 admissions, and the constant sickness of 13·46 men; the admission ratio for primary venereal sores was, therefore, 147·2 per 1,000, which is lower by 44·4 than the corresponding rate in 1894, but higher than the average rate for the preceding nine years by 7·2. *Secondary syphilis* was the cause of 96 admissions, equal to 63·4 per 1,000, a decrease of 4·4 from the previous year's rate, but an increase of 16·3 on the average rate. The admissions for *gonorrhœa* numbered 292, being in the ratio of 192·7 per 1,000, which is above that in the preceding year by 2·6, and higher than the average rate for the preceding nine years by 64·4. Including all forms of venereal disease the total admission ratio amounted to 403·3 per 1,000, which, however, is lower by 46·2 than the corresponding rate in the previous year, but is above the average by 87·9. The total amount of constant inefficiency on account of these diseases was equal to 31·96 per 1,000, ower than in 1894 by 3.44, but above the average rate by 8·66 per 1,000.

Alcoholism caused 6 admissions as compared with 8 in the previous year. There was no admission for delirium tremens.

China.

Debility.—Under this head 33 admissions are recorded, being in the ratio of 21·8 per 1,000, which is lower than in the preceding year by 6·5, but higher than the average rate by 1·0. All the cases were due to climatic causes.

Rheumatism caused 21 admissions, equal to 13·9 per 1,000. Rheumatic affections were much less prevalent than in the previous year, the decrease of admission rate being as much as 10·3, and the ratio was also below the average by 4·6; no case of rheumatic fever occurred.

Tubercular Diseases.—Eleven admissions are recorded as compared with 5 in the previous year. All the admissions were for disease of the lungs; one death occurred.

Other general diseases caused 17 admissions, including 10 of anæmia and 7 of non-malignant new growth.

Local Diseases.—*Diseases of the Nervous System* caused 4 admissions, equal to 2·6 per 1,000, as compared with 2·8 in the previous year and 6·7 the average rate of the preceding nine years. No case of mental disease occurred. There was one death from abscess of the brain.

Diseases of the Eye.—Nine admissions occurred; the ratio, 5·9 per 1,000, is lower by 7·2 than in the previous year, and below the average rate by 2·6.

Diseases of other Organs of Special Senses.—46 admissions are returned, equal to a ratio of 30·4 per 1,000, which is above the last year's rate by 18·7, and also above the average rate by 19·0. All the cases were due to aural affections, chiefly inflammation of the external meatus.

Diseases of the Circulatory System were the cause of 7 admissions, being in the ratio of 4·6 per 1,000, which is below the previous year's rate by 12·0, and less than the average rate by 9·2. Four of the admissions were cases of palpitation, 2 of valve disease of heart (one fatal), and 1 dilatation of heart.

Diseases of the Respiratory System.—29 admissions are recorded, being in the ratio of 19·1 per 1,000, which is below the last year's ratio by 13·4, and below the average rate by 9·5. 18 of the cases were bronchitis, 5 pleurisy, 3 pneumonia, 2 asthma, and 1 hæmoptysis.

Diseases of the Digestive System caused 146 admissions and 2 deaths. The admission rate was 96·4 per 1,000, as compared with 90·6 in the previous year, and with 93·3, the average rate for the preceding nine years. The principal causes of admission were diarrhœa 54 cases, affections of the mouth and throat 33, and hepatitic diseases 19 cases. The deaths were one each from hernia and diarrhœa.

Diseases of the Lymphatic and Glandular System.—47 admissions are returned equal to a ratio of 31·0 per 1,000, which is lower than in the previous year by 4·3, but above the average rate by 6·6.

Diseases of the Urinary System caused only 1 admission, a case of Bright's disease.

Diseases of the Generative System were the cause of 190 admissions, equal to a ratio of 125·4 per 1,000, which is below the corresponding rate in the previous year by 17·1, but above the average ratio for the preceding nine years by 2·1. All but 34 of the cases were simple venereal ulcer.

Diseases of the Organs of Locomotion.—17 admissions are returned, equal to 11·2 per 1,000, lower than in the preceding year by 1·9, but 2·2 above the average. More than half the admissions were for synovitis.

Diseases of the Connective Tissue were the cause of 24 admissions, or 15·8 per 1,000, as compared with 26·3 in the previous year, and with 25·3, the average rate.

Diseases of the Skin caused 93 admissions, being in the ratio of 61·4 per 1,000, which is higher than that of the preceding year by 9·5 and above the average rate by 11·6. 30 of the admissions were due to boils, 19 to whitlows, and 11 to ulcers.

Injuries caused 142 admissions and 4 deaths, being in the ratios of 93·7 and 2·64 per 1,000 respectively, as compared with 84·4 and 3·46 in the previous year, and 86·8 and 2·85, the average rates. There were 2 cases of heatstroke, and 1, fatal, of sunstroke, and there were 3 deaths from asphyxia from submersion, all due to the upsetting of boats. 139 cases of local injury included 11 cases of fracture and one case of concussion of brain, the remainder being chiefly due to contusions, wounds, or sprains.

Invaliding.—The number of men invalided home was 81, being in the ratio of 53·46 per 1,000, which is below the corresponding rate in the previous year

by 15·70, but above the average for the preceding ten years by 26·81. *China.*
With regard to invaliding from arms of the service and corps it is found that the invaliding ratio for the Artillery, 68·49 per 1,000, is considerably above that in the preceding year. In the Engineers 5 men were invalided, equal to a ratio of 34·25 per 1,000, as compared with 60·15 in the previous year. The invaliding rate in the Infantry, 52·53 per 1,000, is lower by 27·83 than in 1894. With regard to age it is found that among men between 20 and 25 years there were 44 invalided, the ratio being 51·89 per 1,000; among men between 25 and 30 years, 26 were invalided, or 53·06 per 1,000, and among men over 30 years of age, 11, or 67·90 per 1,000. According to length of service in the Command it is found that 15 men, or 12·13 per 1,000, were invalided in their first year; 63, or 308·82 per 1,000, in their second; 1 man, or 21·28 per 1,000, in his third; and 2 men, or 74·07, had over that service in the Command. The principal causes of invaliding were debility and malarial fevers each 22 cases, diseases of the digestive system 7 cases, tubercular diseases 6, diseases of the circulatory system 5, &c. The number of men finally discharged by invaliding was 24, being in the ratio of 15·84 per 1,000. The principal disabilities necessitating discharge by invaliding were, debility 5 cases, constitutional syphilis 3, diseases of the circulatory system 3, and nervous diseases, diseases of the digestive system, diseases of the lymphatic and glandular system, and diseases of the organs of locomotion 2 cases respectively.

Officers.—The average strength was 62, and there were 39 attacks of illness and 1 death, being in the ratios of 629·0 and 16·13 per 1,000, which are both higher than the corresponding rates in the previous year. The principal cause of sickness was malarial fever. The death was due to pleurisy. Five officers were invalided, one each for alcoholism, debility, melancholia, angina pectoris, and hepatitis.

Women.—The average strength was 71, and there were 77 attacks of illness, but no death. The admission rate was 1084·5 per 1,000, which is above the last year's rate by 136·2. The principal causes of sickness were malarial fever and influenza, and there was one case of enteric fever.

Children.—The average strength was 135, and there were 130 attacks of illness and 3 deaths, being in the ratios of 963·0 and 22·22 per 1,000 respectively, the former being lower by 287·0 and the latter by 6·63 than the corresponding rates in the previous year. The principal causes of sickness were malarial fever, diarrhœa, influenza, and teething. There was one mild case of small-pox. The deaths were due to teething, asphyxia from submersion, and fracture, one case respectively.

Sanitary Conditions.—The Principal Medical Officer reports that the general health of the troops in the Command was only fair, but showed an improvement during the year under consideration. The accommodation provided for the sick is very unsatisfactory, part being on the hospital ship "Meanee," and part on shore in different barrack rooms. Suitable accommodation for the treatment of infectious diseases, prisoners, and lunatics, is especially required.

The following sanitary improvements and services have been carried out during the year:—

Head Quarter House.—Erection of new latrine for Europeans, and reconstruction of Chinese latrine. Drain laid between C and D blocks, Queen's Road, and connected with Colonial sewer.

At the Murray Barracks drainage has been remodelled, and new latrines have been provided at the Victoria Barracks, Commissariat Buildings, Lyemun Redoubt, and Stonecutters Central.

China,

II.—Asiatic Troops.

The force consisted of the Hong Kong Companies, Royal Artillery, average strength 425, the Chinese Company, Submarine Miners, Royal Engineers, average strength 48, and the Hong Kong Regiment with an average strength of 842. The total average annual strength was 1,315, the number of admissions into hospital 1,003, there were 13 deaths (5 of which occurred in men of the Hong Kong regiment while on leave in India), and 42·35 men were constantly sick. The admission ratio, therefore, was 762·7 per 1,000, the mortality rate 9·88, and the rate of constant inefficiency through sickness 32·20 per 1,000. The admission and constantly sick rates show an increase of 98·6 and 2·72 per 1,000 respectively, while the death rate shows a decrease of 2·33. 202 of the admissions were due to malarial fever, 192 being returned as ague, 7 as remittent fever, and 3 as malarial cachexia. Among the remainder the principal causes of sickness were venereal diseases 148 cases, injuries 143, cutaneous affections 124, and diseases of the digestive system 102. The deaths were, in the Command, two from diarrhœa, and one each from cholera, dysentery, remittent fever, valve disease of heart, gunshot wound (homicidal), and one man died out of hospital, cause unknown. Of the men who died in India the cause of death in three instances could not be ascertained, the other two being returned as acute gastritis and constipation respectively.

XII.—ON THE HEALTH OF THE TROOPS SERVING IN THE STRAITS SETTLEMENTS.

Sickness and Mortality.

I.—European Troops.

Straits Settlements.

The average strength of the force in the Straits Settlements was 1,368. The troops in garrison were the 25th Company, Southern Division, Royal Artillery, throughout the year; the 26th Company, Southern Division, Royal Artillery, up to 26th February, when it left for Malta; the 38th Company, Southern Division, Royal Artillery, formed at Singapore 1st June; detachment Royal Engineers; the 2nd Battalion Lincolnshire Regiment up to 23rd March, when it left for England, having been relieved by the 2nd Battalion Northumberland Fusiliers from India; and detachments Army Service Corps, Medical Staff Corps, and Ordnance Store Corps. The distribution was:—The companies of Artillery at Fort Canning, Blakan Mati, and outlying forts, the Engineers at Pulo Brani, the Infantry at Tanglin, Fort Canning, and Penang, and detachments of departmental corps at various stations.

In the following table the principal health statistics of these troops are given:—

1895. Average Strength.	Admissions.	Deaths			Invalids		Average constantly Sick.	Ratio per 1,000 of Strength.				
		In the Command.	Of Invalids.	Total.	Sent Home.	Finally Discharged.		Admissions.	Deaths.	Invalids Sent Home.	Invalids finally Discharged.	Constantly Sick.
1,368	1,469	9	2	11	18	10	96·98	1073·8	8·04	13·16	7·31	70·89

Compared with the return for the previous year the admission ratio has increased by as much as 308·4 per 1,000, the death rate is lower by 1·07, and the constantly sick rate higher by 16·86; but compared with the average rates for the preceding ten years there is a decrease of 32·6 in the admission rate; the mortality and constantly sick rates, however, are higher by ·93 and 2·82 per 1,000 respectively. The average sick time to each soldier was 25·88 days, which is longer than the corresponding period in the previous year by 6·16, and than the average period for the preceding ten years by 1·03 days. The average duration of each case of sickness was 24·09 days, which is shorter than in 1894 by 1·67, but longer than the average decennial period by 1·63 days.

The principal sickness and mortality statistics of separate corps will be found in Abstract XXV. In the Artillery the admission ratio was 1007·8, the death rate 11·76, and the constantly sick rate 74·94 per 1,000, the admission and constantly sick rates being above, and the death rate below, the corresponding ratios in the previous year. In the Infantry the ratio of admission was 1173·0 per 1,000, the constantly sick rate 75·64, and the death rate 7·04, the two former being considerably above, but the latter below, the corresponding ratios in the preceding year. In the detachments Royal Engineers and Departmental Corps the sick ratios were low.

Taking the sickness and mortality according to the age of the troops, it is found that among men under 20 years of age the admission ratio was 1,000. Among men between 20 and 25 years of age

Straits Settlements.

in the next quinquennium 822·2, and among men over that age 483·9 per 1,000. In the previous year the highest admission ratio was among men between 25 and 30 years of age. There were 5 deaths among men between 20 and 25 years of age, equal to a ratio of 6·94 per 1,000, among men between 25 and 30 years of age there were 2 deaths, or 4·04 per 1,000, and among men over that age there were also 2 deaths, or 16·13 per 1,000. With regard to the influence of service in the Command, it appears that the admission rate among men in their first year of service was 1230·3 per 1,000, among men in their second year 694·9, among men in their third year 549·5, increasing again among men with over three years' service in the Command. In the previous year the highest ratio was among men in their first year of service. Seven of the deaths took place among men in their first year of service, the mortality rate being 6·89 per 1,000; the remaining two deaths occurred among men with over three years' service, the ratio being 38·46 per 1,000.

In Abstract XIII. will be found the sickness, mortality, and invaliding arranged according to the different groups and orders of diseases.

GENERAL DISEASES.—*Diseases dependent on Morbid Poisons.*—There was no case of *eruptive fever* among the troops during the year, and only one of *enteric fever*, which proved fatal. The disease was probably contracted at a drinking-house in the town. *Other continued fevers* caused 72 admissions, or 52·6 per 1,000, as compared with 77·4 in the previous year, and 70·9, the average ratio for the preceding nine years. *Dysentery* caused 6 admissions, being in the ratio of 4·4 per 1,000, which is below the corresponding rate in the previous year by 1·7, and also below the average rate by 3·4. Eight cases of *influenza* complete the number of admissions in the first sub-group of diseases.

Malarial Fevers.—The admissions numbered 64, equal to a ratio of 46·8 per 1,000, which is higher than the corresponding rate in the previous year by 17·2, but below the average for the preceding nine years by 67·6. The cases at Tanglin were 27 of ague and 3 of remittent fever (fatal); at Penang 21 of ague and 2 of remittent fever; and at Fort Canning 10 of ague and one of malarial cachexia. The cases were mild, with the exception of those of the remittent type. The majority of the cases, with the 3 deaths, occurred among the men of the 2nd Battalion Northumberland Fusiliers, a regiment with much fever, recently arrived from India.

Septic Diseases.—Under this head two cases of erysipelas are returned.

Venereal Diseases.—There were 330 admissions for *primary syphilis*, being in the ratio of 241·2 per 1,000, which is higher than the corresponding rate in the previous year by 121·2, and above the average rate for the preceding nine years by 146·8. Including the sickness from simple venereal ulcer, admissions 46 and constantly sick 3·19, the admission ratio for primary venereal sores was 274·8 per 1,000, above the last year's rate by 142·7, and higher than the average rate by 99·2. *Secondary syphilis* caused as many as 190 admissions and 2 deaths, including one of an invalid after leaving the Command, the admission ratio being 138·9 per 1,000, which shows an increase of 34·9 on the rate in the previous year, and is above the average rate by 45·1. *Gonorrhœa* was the cause of 287 admissions, or 209·8 per 1,000, an increase of 80·0 over the last year's rate, and one of 65·7 over the average rate. Including all forms of venereal diseases, the admissions amounted to 853, and the number constantly sick to 62·55, which are much more than half the admissions and constantly sick from all causes. The admission ratio was 623·5 per 1,000, which is higher than the corresponding rate in the previous year by 257·6, and above the average rate by 210·0. The total amount of constant inefficiency from these diseases was 45·72 per 1,000, above the rate in 1894 by 14·63, and above the average rate by 10·60. Speaking of the prevalence of these diseases, the Senior Medical Officer, Brigade-Surgeon Lieutenant-Colonel N. B. Major, remarks that "the very large increase of "venereal is extremely noticeable, and is chiefly in the 2nd Battalion North-"umberland Fusiliers, who arrived from India early in the year, and whose "admissions for venereal disease are more than half their total."

Parasitic diseases caused two admissions, cases of tænia solium.

Alcoholism caused 6 admissions, as compared with 8 and 1 death in the previous year. There was no case of delirium tremens.

Debility.—Under this head 4 admissions are recorded, being in the ratio of 2·9 per 1,000, a decrease of 3·2 from the last year's rate, and below the average rate by 14·0. *Straits Settlements.*

Rheumatism caused 17 admissions, being in the ratio of 12·4 per 1,000, which is above the corresponding rate in the previous year by 5·6, but almost identical with the average rate. Two cases of rheumatic fever occurred.

Tubercular Diseases caused 6 admissions and one death, that of an invalid after leaving the Command, against 6 and 3 deaths in 1894. All the cases were due to affection of the lungs. Of the 5 remaining admissions in this group of diseases, 2 were cases of anæmia, and the remainder non-malignant new growth.

Local Diseases.—*Diseases of the Nervous System.*—3 admissions are returned. The admission ratio differs from the corresponding rate in the previous year by a decrease of 5·4, and from the average rate of the preceding nine years by almost the same. The cases were 2 of paralysis, and one of neuralgia.

Diseases of the Eye caused 10 admissions, equal to a ratio of 7·3 per 1,000, as compared with 3·0 in the previous year, and 19·3, the average rate. More than half the admissions were due to conjunctivitis.

Diseases of other Organs of Special Senses were the cause of 19 admissions, or 13·9 per 1,000, which is about the average rate, but above that in the previous year by 5·5. All the admissions were for aural affections.

Diseases of the Circulatory System were the cause of 3 admissions and 1 death. The admission ratio, 2·2 per 1,000, is above the last year's rate by 1·4, but below the average by 3·0. Two of the admissions were for valve disease of the heart (1 fatal), and one for palpitation.

Diseases of the Respiratory System were less frequent than usual, the admission ratio, 12·4 per 1,000, being below the average rate by 10·3, and below the previous year's rate by 2·0. Out of 17 admissions, 13 were for bronchial affections; and there were 3 for pleurisy, and one for pneumonia (fatal).

Diseases of the Digestive System caused 45 admissions, being in the ratio of 32·9 per 1,000. This shows a considerable decline, as much as 40·7, from the average rate, and is below the corresponding rate in the previous year by 17·2. Dyspepsia and diarrhœa were the principal causes of admission, 12 cases of the former and 10 of the latter being returned. Among the remaining admissions were 7 for hepatic disease. A death from hepatitis is recorded.

Diseases of the Lymphatic and Glandular System were the cause of 63 admissions, equal to a ratio of 46·0 per 1,000, which is above the rate in the previous year by 22·5, and above the average by 7·1.

Diseases of the Urinary System caused only 7 admissions. The cases were 3 of inflammation of the bladder, 2 of nephritis, and one each for incontinence of urine, and Bright's disease; the last named proved fatal.

Diseases of the Generative System.—67 admissions are returned, of which 46 were for simple venereal ulcer. The admission ratio, 49·0 per 1,000, is above the corresponding rate in the preceding year by 23·2, but below the average rate by 53·9.

Diseases of the Organs of Locomotion gave an admission ratio of 3·6 per 1,000, below that in the previous year by 2·5, and below the average rate by 4·5. All the admissions were for synovitis.

Diseases of the Connective Tissue.—39 admissions gave a rate of 28·5 per 1,000, above the rate in 1894 by 8·0, but below the average by 4·6.

Diseases of the Skin caused 66 admissions, or 48·2 per 1,000, which is above the rate in the preceding year by 7·2, but below the average rate by 24·0. The more frequent causes of admission were ulcer and boil, 21 and 17 cases of each having occurred.

Injuries.—116 admissions are returned, the ratio being 84·8 per 1,000, which shows an increase of 18·7 on the previous year's rate, and a decrease of 13·1 from the average rate. General injuries were represented by one case each of heat apoplexy, sunstroke, and asphyxia from submersion.

The admissions for local injury were of ordinary character and do not require special mention.

Straits Settlements.

Invaliding.—The number of men invalided home during the year was 18, being in the ratio of 13·16 per 1,000, which is below the corresponding rate in the preceding year by 4·30, and below the average rate of ten years by 6·90. Of the men invalided 5, or 19·61 per 1,000, belonged to the Artillery, and 13, or 13·08 per 1,000, to the Infantry. With regard to the ages at which invaliding took place, 7 men, or 9·72 per 1,000, were between 20 and 25 years of age; 9, or 18·18 per 1,000, were between 25 and 30 years of age, and 2, or 16·13, were over 30 years of age. As to length of service in the Command, 9 men, or 8·85 per 1,000, were in their first year; 2, or 16·94 per 1,000, in their second; 4, or 21·98 per 1,000, in their third; and 3 men, or 57·69 per 1,000, had over three years' service in the Command. The principal causes of invaliding were tubercular diseases 7 cases, or 5·12 per 1,000, constitutional syphilis 4, or 2·92 per 1,000, and rheumatism 2 cases, or 1·46 per 1,000. The number of men finally discharged as medically unfit for further service was 10, equal to a ratio of 7·31 per 1,000, fractionally higher than the rate in the previous year. The chief disabilities necessitating discharge were tubercular diseases 3 cases, constitutional syphilis 2, and mental diseases 2.

Officers.—The average strength of officers was 48, and there were 25 cases of illness, being in the ratio of 520·8 per 1,000. which is lower than the corresponding rate in the previous year by 96·2. The principal causes of sickness were rheumatism and injuries. One death occurred from cholera; this officer was the only European attacked during the epidemic amongst the native population. Two officers were invalided, one on account of dysentery and one for hepatitis.

Women.—The average strength was 50, and there were 39 cases of sickness, being in the ratio of 780·0 per 1,000, which is higher than the rate in 1894 by 152·6. The chief causes of sickness were debility and simple continued fever. No death occurred.

Children.—The average strength is shown to have been 94, and there were 67 cases of sickness, but no death, The ratio of prevalence of sickness, 712·8 per 1,000, shows an increase of 317·0 on the last year's rate. The cases treated comprised 9 of bronchial affection, 8 of simple continued fever, 4 of stomatitis, 4 of diarrhœa, &c.

Sanitary Conditions.—The Senior Medical Officer reports that "more "than half the sickness in the Straits Settlements is due to venereal "disease, which has considerably increased during the year. The reports "of medical officers make no allusion to anything else affecting the health of "the troops. Not only the individual suffers, but the population must suffer "also, by so many diseased persons sown broadcast, as these men are, "throughout the country." New barracks, quarters, and hospital are under contruction at Blakan Mati; when complete the Artillery are to be moved there. The latrines at Fort Canning are insanitary from faulty construction, and nothing but demolition will suffice; but, considering the contemplated movements of the troops to Blakan Mati, it is a question as to the necessity, owing to the expense.

Urinals are required at Tanglin and Fort Canning in closer proximity to barracks. The surface drains at Fort Canning have been improved, but they should be connected with the municipal system of drains at their exit.

The ablution accommodation at Fort Canning has been limited, and there is not the ample means provided at all other stations that should be; representations have been made on this point, and the further accommodation necessary will be provided.

The ventilation of hospital, barracks, huts, &c. has been satisfactory, and the cooking, scale of rations, and clothing, have remained unaltered.

Gymnasia exist at Tanglin and Penang, and are attended by the men with marked benefit.

There has been no disease amongst the troops attributable to bad sanitation.

II.—Asiatic Troops.

Strait Settle

The force consisted of the Singapore Company, Royal Artillery, at Blakan Mati, and the Singapore Company, Royal Engineers, at Pulo Brani, the average strength being 117 and 49 respectively. The admissions numbered 101, and the average constantly sick was 5·12; there was one death from peritonitis. The admission ratio was 608·4, and the constantly sick rate 30·84 per 1,000, as compared with 691·4 and 33·58 respectively in the previous year. Among the cases treated were 17 of simple continued fever, 15 of venereal disease, 8 of bronchial affections, 6 of rheumatism, and 5 of malarial fever.

India.

year. Besides those already referred to may be mentioned Mooltan with a ratio of 18·85 against 2·18 in 1894 and 12·50 the decennial average rate, and Fyzabad with an increase of 14·97 and 13·38 as compared with the preceding year's rate and the decennial average respectively. The most notable instances of decrease were in Lucknow, where the rate was 21·90 as compared with 56·61 and 19·61, the previous year's and decennial average ratios; Mian Mir with 15·57, as against 47·73 and 28·30; and Cawnpore, where the rate was less than in the last year by 21·37 and below the average by 14·31.

Among the ten hill or convalescent depôts it is found that Pachmarhi gave the highest admission ratio, 2386·0 per 1,000, which is an increase of 1321·2 on the corresponding rate in the previous year, and of 659·6 on the decennial average rate, the increase being due to malarial fevers and venereal affections. The next highest ratio was 2219·9 at Deolali, as compared with 2146·0 in 1894, and 1492·0, the average rate; Dalhousie came third with 2153·2, higher by 731·3 and 668·2 respectively in the two comparisons, owing to the great prevalence of ague throughout the season. At Poonamalee, Kasauli, and Naini Tal the admission rates, though above those for 1894 by 588·0, 146·6, and 151·9, were below the average rate by 153·4, 36·4, and 177·5 respectively, but Khandalla had an increase of 295·5 and 167·8 in the two comparisons. The remaining three stations gave ratios comparing favourably with both those for the preceding year and with the average rates, as follows:—Darjeeling, 937·5, lower by 37·9 and 221·6; Landour, 898·1, lower by 232·6 and 698·4; and Murree, 515·2, lower by 934·8 and 895·6 respectively. The mortality ratio was highest at Murree, 60·61 per 1,000, being 35·61 higher than that of the year before, and 22·48 than the decennial average, while the next ratio, 45·11, occurred at Poonamalee, where the rate in 1894 was 64·10 (the highest in that year), the average rate being 45·72. At Pachmarhi, Khandalla, and Deolali the death rates, 26·32, 25·97, and 13·75, were higher in the two comparisons by 7·80 and 8·21, 14·21 and 24·31, and 4·71 and ·19 respectively. The largest decrease is observed in the rate for Kasauli, which is lower than in 1894 by 25·04, and below the average rate by 13·84, and at Dalhousie, and Landour the ratios are lower in the two comparisons by 12·92 and 6·00, and by 7·03 and 3·45 respectively. At Naini Tal and Darjeeling the ratios are higher than those of 1894 by 7·60 and 1·42, but lower than the decennial average rates by 1·72 and 5·78 respectively. As in preceding years, Darjeeling, Dalhousie, Pachmarhi, and Deolali were also garrisoned by a portion of healthy men.

Of the principal hill stations garrisoned by healthy troops and having an average strength of over 150 men, Kuldana gave the highest admission ratio, 2350·2 per 1,000, which is above the last year's rate by 921·3, and above the average rate for the previous ten years by 1206·2. The next rate was at Chaubattia, 1691·3, higher in the two comparisons by 719·6 and 367·4 respectively. The lowest rate occurred at Bernardmyo, 816·5 per 1,000, as against 909·6 in 1894, and 1209·0 the average rate; the rates next above being 938·9 and 1088·3 at Jutogh and Subathu respectively, both being lower than corresponding rates in the preceding year and than the average rates for the preceding decennium. The highest mortality rate was 29·56 at Cherat, above the last year's rate by 7·39, and in excess of the average rate by 11·67; Jutogh came second with 21·83, against 4·31 and 9·30 in the two comparisons, and Chakrata third with 20·59, as compared with 3·02 in the previous year, and 11·55 the ten years' average. At Chaubattia and Ranikhet the rates were 12·86 and 10·79 respectively. At no other station did the rate amount to 10, the lowest, viz., 4·22, being at Kuldana, while at Bernardmyo no death occurred.

In Abstract XXVI. will be found the more important of the statistics of sickness and mortality of the different arms of the service as well as of the individual corps which served in the country during the year.

The average strength of the Cavalry was 5,439, and there were 6,730 admissions into hospital and 72 deaths in India, the average number of men constantly inefficient on account of sickness amounting to 479·31; the ratio of admission was 1237·4, that of mortality 13·24, and that of constantly sick

88·12 per 1,000 of strength. Compared with corresponding figures for 1894 the admission and constantly sick rates have declined by 156·3 and 2·46 respectively, but the mortality ratio has increased by ·29. The average sick time to each soldier, 32·17 days, is shorter than in the previous year by ·89 of a day, and the average duration of each case of sickness, 26·00, is longer than in 1894 by 2·28 days. *India.*

In the Artillery, with an average strength of 11,974, there were 16,916 admissions into hospital, 182 deaths, and 1038·13 men were constantly sick, giving ratios of 1412·7, 15·20, and 86·70 in each instance. Compared with the ratios for the previous year there is a decrease of 95·6 in the admission, one of 2·72 in the mortality, and of ·39 in the constantly sick rate. The average sick time to each soldier was 31·65 days, less than in 1894 by ·14 of a day, and the average duration of each case of sickness 22·40 days, 1·32 more than in the year preceding.

The Infantry had an average strength of 47,335, with 72,266 admissions into hospital, 655 deaths, and 4572·63 men constantly sick, or ratios of 1526·7 per 1,000 for admissions, 13·84 for mortality, and 96·60 for constantly sick, lower than in 1894 by 28·8 and 2·17 in the admission and death rates, but higher by 3·04 in the constantly sick rate. The average sick time to each soldier was 35·26, and the average duration of each case of sickness, 23·10 days, longer than in the year preceding by 1·11 and 1·15 days respectively.

The following table shows, as far as possible, the statistics of sickness, mortality, and invaliding among the troops according to age:—

Age.	Average Strength.	Admissions.	Deaths.	Invaliding.	Ratios per 1,000 of Strength.		
					Admissions.	Deaths.	Invaliding.
Under 20 years - -	1,887	2,105	10	28	1115·5	5·29	14·84
From 20 to 25 years -	35,628	65,204	602	1,035	1830·1	16·90	29·05
„ 25 „ 30 „ -	23,537	28,144	242	466	1195·7	10·28	19·80
„ 30 „ 35 „ -	4,779	3,104	54	82	649·5	11·30	17·16
„ 35 „ 40 „ -	1,363	938	26	40	688·2	19·08	29·35
40 years and upwards -	401	241	8	12	601·0	19·95	29·9
Not stated - - -	736	30	—	—	40·8	—	—
Total - -	68,331	99,766	942	1,663	1460·0	13·79	24·34

The ratio of admissions among men under 20 years of age was 1115·5, and the highest ratio at any period of age was 1830·1 per 1,000 among men between 20 and 25 years. In the remaining quinquennia a steady decline is observed, the ratios being 1195·7, 649·5, 688·2, and 601·0 among men between 25 and 30, 30 and 35, 35 and 40, and 40 years of age and upwards respectively. In the first three periods exactly the same sequence of ratios occurred in the previous year, there was, however, a slight difference in this respect regarding the other quinquennial periods; except in the case of men from 35 to 40 years of age, all the ratios were lower than the corresponding ones for 1894. The largest decrease in the admission rate occurred in men between 30 and 35 years of age, 99·9 per 1,000, the next below was 92·2 among men from 20 to 25 years, third and fourth, 83·6 and 75·2 among men over 40 and under 20 years of age respectively, and 25·7 among men between 25 and 30 years. The only instance of increase was 20·1 in men between 35 and 40 years of age. It will be observed that the highest ratio for mortality occurred among men over 40 years of age, the next below among men between 35 and 40, and the lowest among men under 20 years of age. Except in the case of men from 35 to 40 years, in which age period there was an increase of 4·52 per 1,000, all the ratios were lower than the

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corresponding ones of the preceding year; the largest decrease, 6·94, occurred among men over 40 years of age, the next, 5·62, among men under 20 years of age, the decrease among men from 30 to 35 years and the two preceding quinquennial periods being 5·14, 2·60, and 1·99 respectively.

The following table is given to show as far as possible the influence of length of service in the country on the sickness, mortality, and invaliding among the troops:—

Length of Service in the Country.	Average Strength.	Admissions.	Deaths.	Invaliding.	Ratios per 1,000 of Strength.		
					Admissions.	Deaths.	Invaliding.
Under 1 year - -	13,023	21,886	258	247	1680·6	19·81	18·97
From 1 to 2 years -	12,331	20,803	203	353	1687·0	16·46	28·63
„ 2 „ 3 „ -	12,375	17,876	152	330	1444·5	12·28	26·67
„ 3 „ 4 „ -	10,669	15,451	117	293	1448·2	10·97	27·46
„ 4 „ 5 „ -	7,867	10,322	67	197	1312·1	8·52	25·04
„ 5 „ 10 „ -	9,475	12,280	122	200	1296·0	12·88	21·11
10 years and upwards -	1,955	1,118	23	43	602·7	12·40	23·18
Not stated - -	736	30	—	—	40·8	—	—
Total - -	68,331	99,766	942	1,663	1460·0	13·79	24·34

It will be observed that the admission rate among men in their first and second years of Indian service is practically identical, being higher than at other periods, the ratios for which gradually diminish. In the preceding year the highest ratio occurred among men under one year's service, and declined through the subsequent periods in regular sequence. Comparing the admission rates of the two years, it is found that there was a decline throughout the several periods of service, the largest decrease, 257·4, being among men in their first year's service, followed by 69·1, 58·1, and 54·3 in the third, fourth, and above the tenth year of service. With regard to mortality, the highest ratio was among men in their first year, the next being among men in their second year, followed by those among men between 5 and 10 and over ten years' service, and then in regular sequence by the rates among men in their third, fourth, and fifth years of Indian service. In the preceding year also the highest death rate occurred among men with under one year's service, and the lowest among men in their fifth year of service in the country, the sequence of the other ratios differing slightly from that in the year under report. Compared with the corresponding figures for 1894, all the mortality rates, except that among men in their second year, show a decrease, the largest being 8·51 among men under one year, and the next below 4·05 and 4·04 among those in their fifth and fourth years respectively, followed by 1·42 among men with ten years and upwards, and 1·23 among those in their third year of service in the country. The smallest decrease was ·35 among men with between 5 and 10 years' service.

In Abstract XIV. will be found a table showing the admissions, deaths, invaliding, &c. according to the different groups and orders of diseases, and in Abstract XV. will be found the sickness and mortality from the same in each of the military districts in India.

General Diseases.—*Diseases dependent on Morbid Poisons.—Eruptive Fevers* caused 57 admissions into hospital and 2 deaths. 19 of the admissions and the 2 deaths were due to *small-pox*, 4 cases and 1 death at Bangalore, 3 and 1 at Saugor, 3 admissions at Rawal Pindi, 2 each at Jubbulpore, Belgaum, and Kamptee, and 1 each at Meerut, Mian Mir, and Nasirabad. There were 22 admissions for measles (20 at Bombay, and 1 each at Campbellpore and Nowshera), 9 for epidemic rose-rash (4 each at Ferozepore and Quetta,

and one at Multan), 3 for cow-pox, 3 for chicken-pox, and one for scarlet fever. The ratio of admission for small-pox was ·2, against ·2 in the previous year, and ·7, the average ratio for the preceding nine years. The mortality ratio was ·03 as compared with ·04 in 1894, and ·07 the average rate.

Enteric Fever.—This disease caused 1,544 admissions into hospital, 383 deaths, and the constant sickness of 219·77 men, being in the ratios of 22·6, 5·61, and 3·22 per 1,000 respectively. Compared with similar ratios for the preceding year, the admission and constantly sick rates show an increase of 1·7 and ·25 respectively, but that of mortality a decrease of ·14; in comparison with the average rates for the previous nine years increase is observed in all, equal to 3·8 in the case of admissions, ·50 in that of mortality, and ·58 in the rate of constant inefficiency. The per-centage of mortality to attack was 24·8, as compared with 27·5 in 1894, the average per-centage for the previous nine years being 27·2. In Abstract XVII. the occurrence of enteric fever at each station and in each quarter of the year is shown. The second quarter had the largest number of attacks and deaths, the third, fourth, and first quarters following in the order named. The per-centage of mortality to attack was highest in the second quarter, 26·8, followed by the third, first, and fourth quarters with 25·8, 24·5, and 19·7 respectively; in the last year the highest per-centage was in the third quarter, followed by the second, fourth, and first.

The disease occurred in every district, and, with thirteen exceptions, in every station in India, no cases being recorded at Fort Fulta, Fort Chingrikhal, Gnathong, Sipri, Landour, Khyra Gali, Camp Thobba, Camp Topa, Poonamallee, Ramandroog, Port Blair, Shwebo, and Bernardmyo. The highest ratio of admission was 42·3 per 1,000 in the Deesa district, which stood thirteenth in 1894 with a ratio of 19·7, followed by 41·9 in Peshawar, being an increase of only ·8. The Sirhind district, which had the highest admission ratio in 1894, comes next with 40·3, a decrease of 7·1, followed by Oudh with 38·6, an increase of 14·9. The lowest ratio, 3·7, is shown by the Mandalay district, which was fourth lowest the year before with 4·7; the next above, 4·0, by the Belgaum district, which was the lowest in 1894 with 1·7. In addition to those above mentioned, in the Allahabad and Meerut districts the ratios were higher by 12·2 and 8·4 respectively than in the previous year. The largest decrease in ratio, 23·2 and 10·2, is observed in the Mhow and Lahore districts. The highest rate of mortality (as in the preceding year) is observed in the Peshawar district, 13·52 per 1,000, as compared with 15·17 in 1894; the next rate, 10·51, being in the Meerut district, which stood fourth with 8·69 the year before, followed by Bundelkhand with 10·38, an increase of 4·97. Excepting Belgaum, in which district there was no death, the lowest mortality rate was in the Mandalay district, ·53 per 1,000, a decrease of ·52, and the next above, 1·05, in the Bangalore district. Among other districts having a higher mortality rate than in the preceding year were the Presidency, increased by 2·12, Oudh by 2·26, Narbudda by 2·45, Bombay by 2·97, Deesa by 6·35, and Aden by 3·85. The Sirhind district, which had the second highest ratio in 1894, and Mhow and Nagpur, which stood third and sixth, now show death rates diminished by 6·81, 4·57, and 3·21 respectively.

The station at which the greatest number of cases occurred was Lucknow, where there were 128 with 35 deaths, as compared with 67 and 21 in 1894. Of the men attacked, 105 had been less than three years in India. Although the greatest number of attacks occurred in January and the next in December, the highest per-centages of admission were in May and April. During the hot season the garrison was much reduced, owing to the absence of the East Lancashire Regiment (except a small depôt) on field service; many young soldiers also were in the hills. The Medical Officer remarks: "It is very disappointing "to find that the number of cases of enteric fever admitted should have "increased so considerably from 67 in 1894 to 128 in 1895, especially as it had "been hoped that with the new and pure water supply from the Lucknow "Waterworks, there would have been some diminution in the prevalence of "the disease. This was the first complete year in which the municipal water "had been supplied, the works having been opened in August 1894." He alludes to the fact that the distribution of the cases among the regimental

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barracks was fairly general, and considers this bears out the opinion he has expressed, that the disease is not caused by any special local sanitary defect in the lines, though an outbreak in the Essex Regiment was traced to the use, by the milk contractors, of vessels washed in water which was found to contain the enteric microbe. He is further of opinion that the disease is, as a rule, contracted in the city and bazars, and points to the overgrown Sadar Bazar and to the refreshment rooms, billiard rooms, and prostitutes' houses therein, to which the men so much resort, as probable places of infection. He also invites attention to the fact that during the rainy months there were few admissions, and considers that the excess in dry months points to a probability of the germs of disease being distributed by the wind mixed with dust.

At Meerut there were 94 admissions with 26 deaths, as compared with 78 and 27 in 1894. Monthly, the admissions were in January, 9; February, 1; March, 2; April, 14; May, 21; June, 8; July, 3; August, 7; September, 1; November, 5; and December, 22.

The medical officer writes (15th January 1896):—"There was an increase of "enteric fever, and this was mainly due to a sudden outbreak in the Royal "West Kent Regiment in December. No special cause could be assigned for "this; most careful and searching inquiries were instituted in all possible "directions, and careful water analyses were made without any result. The "drinking water is at present undergoing special bacteriological examination. "A recommendation was submitted suggesting that the water be boiled; this "was sanctioned as an experimental measure for one month, and is now in "process of being carried out . . . . . With regard to the causation "of the disease, generally speaking, we have not been able to trace a single "case to any definite circumstance or condition, though there is a strong "presumption that most of the cases were contracted by the men while "frequenting the bazars and indulging in articles of food or drink sold there, "particularly bread, milk, and aërated waters."

At Umballa there were 86 admissions with 17 deaths. In 1894 there were 68 and 20 respectively. Admissions by months:—In January, 6; February, 2; March, 4; April, 20; May, 24; June 5; July, 2; August, 1; September, 2; October 3; November, 6; December, 11. The medical officer writes:—"The "fact of 61 cases having been admitted in the first half of the year and only "25 in the last half may have been due to the drinking water having been "carefully boiled since the 10th June. In support of this it may be noticed "that the number of admissions diminished to 5 during the months of July, "August, and September, and is especially remarkable as there were 30 admis-"sions in the corresponding period of 1894. Against this, however, in the "month of June there were only 5 admissions, which diminution could hardly "be accounted for by the boiling of the "drinking water having regard "to the incubation period of the disease." There is further evidence in support of the view that the diminution of the disease in June, July, August, and September was not due to the boiling of the drinking water, viz.:—The admissions among the men in June occurred on the following dates—one each on 2nd, 5th, 24th, 25th, and 28th, showing that the outbreak of April and May had practically ceased before the precaution of boiling the drinking water could have had any effect. Also of 4 admissions during the year among the officers, 1 occurred in March, 2 in May, and 1 in July, and of five among women 2 occurred in April and 3 in May, *i.e.*, during the time of prevalence among the men; further, there were not any cases throughout the year among the children.

At Peshawar there were 82 cases with 28 deaths, as compared with 51 and and 22 in 1894. Admissions by months:—In January, 1; February, 2; May, 5; June, 14; July, 21; August, 15; September, 3; October, 10; November, 5; December 6. The medical officer remarks:—"Of the 10 men "admitted in October, 8 belonged to the Buffs, who had just returned from the "Chitral Relief Force. All the admissions in November were from the same regi-"ment, and it is reasonable to suppose that the disease was imported from the "route to Chitral where enteric was rife. Of the 6 admissions in December, 3

" were from a draft of the Devonshire Regiment, recently arrived in the country. *India.*
" During the greater part of the year no special cause could be assigned for
" the occurrence of the disease, but in November the enteric bacillus was
" found to be present in a sample of the water supply sent for examination to
" the chemical examiner and bacteriologist to the Government, North-
" Western Provinces. A second set of samples was sent from (1) the intake
" from the Bara river; (2) the settlement tank; (3) a sample of sand from the
" filter beds; and (4) from the storage tank. The last specimen (No. 4) was
" the only one found to contain the microbe, and it is surmised that it must
" have been introduced by workmen into the tank, which is a covered-in
" chamber." In consequence of the discovery of the bacillus in the sample from the storage tank, boiling the drinking water was resorted to, and was fully carried out from 13th December, and on that date the tank was emptied and treated with quicklime. It is remarkable, if contaminated water in the storage tank was the cause of the disease, that in the month when the discovery was made there was a complete absence of the disease except in one corps, which evidently owed its cases to importation. Also that in this large garrison no officer or woman, and only one child, was attacked throughout the year.

At Secunderabad the admissions numbered 78 and the deaths 15, as against 61 and 15 respectively in the previous year. Monthly the admissions were:—In February, 10; March, 8; April, 13; May, 5; June, 4; July, 5; August, 9; September, 10; October, 4; November, 4; December, 6. The average strength of men under 25 years of age was 1,319, and among these men there were 49 cases, whereas there were only 29 among the men over 25 years of age with an average strength of 1,445. The medical officer writes:—" The cause of the
" disease in nearly all the cases could not be traced, but the majority of them
" were no doubt contracted in the bazar. Owing to the prevalence of the
" disease, the drinking water was boiled in the 21st Hussars lines from April
" to August, and during that time only 3 out of 19 admissions in the regi-
" ment occurred. In the 2nd British Infantry lines (occupied by the Suffolk
" Regiment) the drinking water was boiled without filtration from 11th June
" to the end of the year and again the experience gained, like that in the 21st
" Hussars lines, was decidedly in favour of boiling water, only 11 out of a total
" of 26 admissions from the regiment having occurred during that time."
The Principal Medical Officer, Surgeon-Major-General A. A. Gore, M.D., considers that as the head-quarters of the regiment in question left the station on 6th October the evidence in favour of boiling is not so marked as stated by the medical officer, as during the 4 months and 5 days of boiling there were 11 admissions as compared with 15 in the first 5 months of the year when the water was not boiled.

At Rawal Pindi 64 men were admitted and 24 died; the numbers in 1894 were 35 and 8. By months the admissions were:—January, 1; February, 2; April, 8; May, 11; June, 20; July, 1; August, 7; September, 2; October, 3; November, 2; December, 7. The medical officer remarks:—"The disease
" was of a severe type running a rapid course and was spread pretty well over
" the garrison. It was confined to single men, as no officer, married non-com-
" missioned officer or man, woman, or child, was admitted for this complaint.
" This would lead one to infer that the disease was probably contracted in
" the bazars where ice creams and drinks of all sorts are sold and largely
" indulged in by the men of the garrison. The strictest inquiries failed to
" trace the cause. I would draw attention to the fact that a heavy downpour
" of rain on the 25th of June caused an immediate and marked diminution
" of admission for this disease. The water supply is from the same source
" as last year and the same precautions exist."

At Chakrata there were 53 cases with 16 deaths, a large increase on the numbers for 1894, which were 13 and 1 respectively. Of the cases 18 occurred in April, 7 in May, 9 in June, 4 in July, 3 in August, 11 in September, and 1 in October. The medical officer reports that 13 men of the Duke of Cornwall's Light Infantry were admitted within 18 days of their arrival by march from Meerut, and 8 men of details within 17 days of their arrival by march from various stations, and he, therefore, considers that, if 21 days are allowed as the

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period of incubation, there can be no doubt that these 21 men contracted the disease before arrival at Chakrata, some of them being admitted within two or three days of their arrival. Of the other 32 cases, which he proposes to consider as contracted in the station, 22 were admitted from Kailana and 10 from Chakrata. The strength at Kailana was 376, and at Chakrata 644, but the per-centage of young soldiers under two years' service at the former place was 55·32, and at the latter 34·27. Also the per-centage of men under 25 years of age was 62·50 at Kailana and 54·66 at Chakrata. He further points out that the whole garrison at Kailana, over and above the young soldiers recently arrived in India, was composed of selected delicate and convalescent men who would be more prone to contract disease than the healthy men of the regiment quartered at Chakrata.

By ages the admissions were—

Under 20 years	16
20 to 22 ,,	23
22 to 24 ,,	9
24 to 26 ,,	4
Over 26 ,,	1

and by length of Indian service—

Under 1 year	32
From 1 to 2 years	10
,, 2 ,, 3 ,,	6
,, 3 ,, 4 ,,	2
,, 4 ,, 5 ,,	0
,, 5 ,, 6 ,,	2
Over 6 years	1

The medical officer states that the water supply of the two parts of the station is the same, it is carried in pipes from a large spring on a mountain side, about three miles distant, to tanks, from which it is distributed by mussacks (leather water-bags) and puckals (leather bags carried on mules) to the Macnamara filters and cookhouses. The catchment area is in reserved forest land and no grazing is allowed near it. The supply from the source to the distribution tanks is as perfectly protected as modern science can make it. From the tanks to the filters the puckals must be used, and, of course, constitute a possible source of contamination; but the medical officer's opinion, based on frequent examination of the puckals and mussacks, is that the water was not contaminated in this way. Regarding milk, he states that he made very careful inquiries regarding these supplies, and formed the opinion that very little protection against milk-borne disease was afforded, but against the probability of milk being the cause of the disease at the station he says that the minutest cross-examination of all those affected failed to elicit that more than 3 or 4 were milk drinkers, and that most of them stated they never touched milk. He also points to the fact that no case occurred among the women or children who consumed milk in large quantities. He reports that over and over again it has come to his knowledge that the soldiers drink largely of the many springs and rivulets on the hill sides while shooting or butterfly catching; he says the men freely admitted doing so, and he considers it is in this way they contract the disease. He remarks that against this theory might be brought forward the fact that before 1887, up to which year enteric fever was practically non-existent at Chakrata, men must have similarly drunk water from these streams, but states that in 1887 it did exist, and from that year Chakrata has, so to speak, been a polluted station as regards soil. He points out that, though the excreta of enteric fever patients are buried remote from the barracks, the distance is not sufficient to avoid pollution of the whole of the water area below them, from the streams traversing which area the men frequently drink.

At Bareilly the cases numbered 52 and the deaths 6, as compared with 40 and 6 in 1894. Admissions by months:—In January, 4; March, 2; April, 6; May, 12; June, 4; July, 1; August, 5; September, 1; November, 6; December, 11. The medical officer could not discover any definite cause for the disease, but considers it is due to impure drinks obtained in the city. He reports

that the water supply in cantonments is always good, being obtained from a good covered well from which it is raised by a chain pump; it is carried to the barracks in metal buckets from the covered storage tank attached to the well. He is unable to give any explanation as to the cause of the great variation between the per-centage of admissions in the various corps, particularly regarding the Royal Artillery and Oxfordshire Light Infantry, the permanent garrison of the station, except that the men of the Artillery are more busily employed, and have fewer opportunities of visiting the city.

At Poona 47 men were admitted and 13 died. The numbers in the previous year were 32 and 14. Monthly the admissions were:—In February, 4; March, 10; April, 10; May, 1; June, 1; July, 3; August, 11; September, 6; October, 1. The medical officer reports that from the 24th August, until enteric fever subsided, all drinking water was boiled. The subsidence of the disease in October cannot, however, be absolutely ascribed to the boiling of the drinking water, as after the prevalence of the disease in March and April there was a subsidence in May and June without boiling being resorted to. Also, although two officers were attacked, there was not a single case among the 115 women and 216 children borne on the strength of the garrison.

At Benares there were 43 cases with 2 deaths, as compared with 22 and 8 in 1894. The admissions by months were:—In January, 1; March, 3; April, 6; May, 7; June, 3; July, 4; August, 9; September, 5; October, 2; November, 2; December, 1. No cause could be discovered. The drinking water was from time to time subjected to bacteriological examination without evidence of its contamination being obtained, but it was, as a precaution, boiled from April to October.

At Agra the cases numbered 38 and the deaths 18. In 1894 they were 45 and 7 respectively. Nine men were admitted in August, 4 each in March, July, and December, 3 each in September, October, and November, and 2 each in February, April, May, and June. The medical officer reports that the water supply is excellent; he considers that the disease is contracted from articles of food obtained out of barracks.

At Jhansi there were 32 cases with 8 deaths, numbers which compare unfavourably with those of the previous year, which were 7 and 3 respectively. The greatest number (9) of admissions occurred in August, and one or more occurred in each of the other months except February and March. The medical officer reports that the water was chemically pure, but that the milk and butter supply, although in his opinion an unlikely source of contagion, was not very satisfactory. He was unable to trace the disease to any definite source.

At Subathu 33 men were admitted and 2 died. In the previous year the numbers were 38 and 6. Eleven cases occurred in July, 8 each in August and September, 4 in June, and 1 each in May and October. The medical officer writes:—"Roughly speaking, the station lies north and south. At the "northern end was a tank of stagnant water nominally used for watering "gardens and cattle, and also used by the native population of the bazar, "which is close by. At the southern end are situated the authorised springs. "Between these two points, but well to the north, is the bazar, and between "the bazar and barracks Nos. 1 and 2 are many wells. The officers' mess is "situated quite close to the tank, and out of a small number of officers "present two juniors suffered from enteric fever. The barracks, which, "roughly speaking, are numbered from north to south, yielded cases as "follows:—No. 1 barrack, 10; No. 2, 10; No. 3, 4; Nos. 9 and 10 "(occupied by one company), 1; the band barracks (huts on a level with "Nos. 9 and 10 barracks), 2; and No. 13 and 14 barracks, the most southern "of all, 3 each. . . . . Bhisties (water carriers) were detected taking "water from the tank to No. 1 barrack, also found employed in taking water "from the tank for use in the bazar, and also from time to time found using "branded mussacks (i.e., those marked as for use only for bringing pure water "from the spring) in the bazar." He reports that the greatest care was taken to try and insure that only water from the spring set apart for drinking water, and which is said to yield a pure supply, was brought for use in the

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barracks, but, as above shown, this supervision was not always effective, and he attributes the enteric fever to the above referred to tank, which has since been drained.

At Mhow the cases numbered 32 and the deaths 7. These numbers compare very favourably with those of 1894, whith were 110 and 25 respectively. The admissions by months were:—In March, 3; April, 6; May, 1; August, 6; September, 4; October, 2; November, 8; December, 2. Of the cases, 14 occurred in the 7th Hussars, 12 in the Durham Light Infantry, and 6 in the Royal Fusiliers, which arrived from Karachi on 29th October. There was not a single case in the 20th Hussars which arrived from England on the same date or in the Horse Artillery Battery which was present throughout the year.

At Allahabad there were 29 cases with 2 deaths; the numbers in 1894 having been 29 and 4; in 1893, 21 and 3; in 1892, 22 and 4; in 1891, 21 and 4; and in 1890, 25 and 10; a remarkable similarity of prevalence. Five men were admitted in December, 4 each in March, August, September, and October, 3 each in May and November, and 2 in April. The medical officer reports that the milk, butter, and water supplies were excellent, and that there was not any sanitary defect in the barracks; he is of opinion that the disease was contracted in the city bazars, which, he states, are very dirty.

At Quetta 28 men were admitted and 6 died, as compared with 38 and 8 in the previous year. There were not any admissions during the first four months of the year; 4 men were admitted in May, 3 in June, 1 in July, 4 in August, 7 in September, 4 in October, 3 in November, and 2 in December. The medical officer remarks:—"It is difficult to account for the disease, "as the sanitary condition of the barracks has been good, and the "water supply, obtained from the Hanna Pass, 13 miles distant, is "exceptionally good and pure. This water is brought in and distributed "throughout the station by pipes, and there are taps in the vicinity of all "barrack rooms and houses, thus reducing to a minimum the temptation to "take water from the numerous irrigation channels which run through the "cantonment. The water in these irrigation channels is far from pure, as "the natives use it for washing their various vessels and also for washing "clothes, and there is little doubt they wash the cooking pots of Europeans "in the same way when they can do so without being detected." He considers milk a possible source, and reports having found the dairy (near the station hospital) in a rather insanitary condition; the milk and butter, instead of being kept in the room provided for the purpose, was stored in the private residence of the milkman, which was both dirty and overcrowded with women and children, the milk was in open vessls, and there were several flies in it.

At Multan the numbers were:—Admissions 25, deaths, 6, a considerable increase on 14 and 1 in 1894; 12 men were admitted in May, 6 in June, 3 in July, 1 in October, and 3 in December. No cause for the disease could be discovered.

At Dagshai there were 22 cases with 2 deaths, as compared with 6 and 18 during the previous year, a very satisfactory improvement. The medical officer writes:—"Five of the cases were evidently contracted before the "men arrived at the station; 4 were attributed to milk, as the men said they "often drank milk and soda water, and samples of the milk supplied to the "troops were examined bacteriologically about this time and were found to "contain enteric microbes. It was recommended in August that all milk "should be boiled, but 6 more cases occurred, which proved that milk con-"tamination was not the sole cause of the disease. One of the men attacked "admitted that he drank water in the jungle, one was employed as an orderly "over an officer suffering from enteric when he contracted the disease, and in "11 cases no cause could be ascertained. Otherwise all the men were living "under similar conditions and obtained milk, water, &c., from the same "sources. It is, however, worthy of comment that the men confined in the "military prison were entirely free from enteric, and I cannot find that a

"single case has occurred there within the last 12 years and probably not *India.*
"before this. These men had the same water, &c., but the little milk allowed
"was invariably boiled, and of course the men could not get out into the
"jungle."

At Wellington the cases numbered 22 and the deaths 6, a large increase on the numbers of 1894, which were 5 and 3 respectively. The water supply is reported as of good quality and no cause for the cases could be discovered.

At Kirkee there were 22 cases with 5 deaths, as compared with 16 and 2 in the previous year. The medical officer writes:—"Between March 20th and "May 13th seven cases occurred in one battery. I was unable to ascertain "that the infection came from any particular source. Some of the cases may "have been contracted from the latrines, but the latter were very clean. The "charcoal and sand in the filters were roasted, and quicklime was mixed with "the earth in the latrines. No more cases occurred in this battery till the "last week in the year, this probably being due to the supply of men "susceptible being for the time exhausted. I feel certain that in the majority "of cases the infection lies outside the barracks, and must be in the drinks "and food which the men get.

At Nasirabad 21 men were admitted and 7 died, as compared with 15 admissions and 3 deaths in the year before. Monthly the admissions were: —in January, 1; February, 1; March, 1; April, 6; May, 4; August, 1; September, 3; October, 3; December, 1. The medical officer remarks:— "The cause of the fever could not be traced to any particular source, but it "was noted at the time that directly the drinking water and milk were boiled, "which was commenced on May 27th, the disease was at once stopped, and "no cases occurred in June or July. 13 cases of enteric fever occurred before "the water was boiled at the end of May, and only 7 in the months of August, "September, and October, when the drinking water and milk were boiled. "The boiling was discontinued on 25th October, and the last case occurred in "December. I am strongly of opinion that the boiling of drinking water and "milk under strict supervision will greatly tend to lessen enteric fever, but "no doubt a few cases will occur from other causes, or by men drinking "impure water in the bazar or elsewhere. On several occasions during the "year when the bazar was placed out of bounds enteric fever generally was "at once diminished." The Principal Medical Officer thinks that the evidence in favour of boiling is not so strong as made out by the medical officer. The last case admitted in May was on the 12th, therefore the disease had ceased 15 days before boiling was resorted to, and its absence in June and July consequently cannot be ascribed to that precaution.

At Bangalore the cases numbered 18, and the deaths 2, a considerable decrease on the numbers during 1894, which were 39 and 11. By months the admissions were:—In January, 2; April, 1; May, 2; June, 4; July, 3; August, 4; September, 1; October, 1. The medical officer writes:—"As "experienced in former years, Bangalore has its enteric fever season. Com- "mencing in April, it reaches its height during the rains, and passes off by "December; this year was unusual in having two cases in January. . . . "Youth and short residence in the country is not so noticeable this year as a "factor; with the exception of three of the men all were over 21 years of "age, and only two were under 2 years resident in India (strength of men "under 2 years in India 385, over 2 years 1,765). . . . Water and milk "were absolutely as pure as it is possible to have them so far as the barrack "supply is concerned. . . . In September filtering the water in barracks "was given up, and boiling alone resorted to, hitherto it had been boiled and "filtered." He contrasts these supplies and the sanitation of cantonments with similar supplies and conditions in the bazar where he considers disease is contracted.

At Dum Dum there were 17 cases with 10 deaths, as compared with 7 and 5 in 1894. Four men were admitted in May, 3 in August, 2 each in February, April, and July, and one each in January, September, October, and November, showing that there was not at any time what could be considered an outbreak of the disease. The medical officer is of opinion that the disease is contracted in the numerous bustees in and adjacent to cantonments. He remarks:—"If

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" enteric fever was prevalent in the station itself, the women and children, " who are the great milk and water consumers of any community, and at the " same time the most susceptible to the ravages of enteric fever, would be " attacked by it, but, as statistics show, not a single case has occurred among " them. Neither has a case occurred among the young officers."

At Jubbulpore 17 men were admitted and 5 died. In the previous year the numbers were 22 and 4. Of the cases, 2 occurred in January, 11 in March, 3 in April, and 1 in July. The medical officer reports :—" When enteric fever " was prevalent at the beginning of the year the sand for the Macnamara " filters was, besides being washed and sun-dried as usual, heated to a tem- " perature of 212° and treated with Condy's fluid after being put into the " filters. No fresh cases of the fever occurred after this was done. . . . " It was found that the source of the sand was most objectionable, viz., from " a nullah contaminated by human excreta and washings from neighbouring " villages. It is now obtained from a pure source."

At Ahmedabad there were 17 cases with 3 deaths, as compared with 8 and 1 in 1894. Nine of the men attacked belonged to the Royal Artillery and 8 to the Infantry detachment. Four of the cases in the Royal Artillery were probably contracted at Deesa, from which station the battery had come a few days before these men were admitted. No definite cause for the other cases was discovered, but the medical officer suspected milk contaminated with impure water.

At Cawnpore the cases numbered 16 and the deaths 5. In 1894 the numbers were 23 and 4 respectively. Six men were admitted in May, 2 each in January, April, August, and December, and 1 each in June and November. The medical officer assigned as the cause impure drinks obtained in the bazars.

At Chaubattia 16 men were admitted and 4 died, a large increase on the numbers for 1894, which were only 2 and 1 respectively. The admissions by months were :—In April, 1 ; May, 2 ; June, 8 ; July, 5. The medical officer considers that the first case was contracted on the march up to the station as the man was admitted soon after arrival. When the outbreak occurred in June he arranged to have all drinking water and milk boiled, and the use of Macnamara filters discontinued. At the same time samples of (1) sand from the filters, (2) unused sand, (3) water from the spring from which drinking water is obtained (this spring is a mile and a half distant from the barracks), (4) water from the spring allotted for the supply of ablution purposes and which is situated ¼ mile from and below the barracks, draining the northern slope of the hill on which these are built, (5) water from the regimental dairy, and (6) milk from that dairy, were sent to the bacteriologist and chemical examiner to the Government, North-Western Provinces, for bacteriological examination. The enteric microbe was found in samples 1, 4, and 5, consequently the cause of disease was traced to the spring used for the supply of washing water. Water from this spring had evidently been used for drinking, and also in the dairy. The use of this spring for any purpose was at once discontinued, boiling of drinking water and milk ceased to be resorted to, being unnecessary, and no case occurred after these measures were fully carried into effect. Water is distributed to the barracks by means of puckals, those for carrying washing water being specially marked, and European orderlies were told off to supervise the muleteers, but evidently these precautions did not prevent water set apart for washing being used for other purposes.

At Kamptee there were 16 cases with 4 deaths, the numbers in the previous year having been 12 and 6. All the men attacked had been less than one year in India. No cause for the disease could be discovered.

At Jutogh the cases numbered 16 and the deaths 2, as compared with 4 admissions and 1 death in 1894. By months the admissions were :—In March, 1 ; April, 9 ; May, 1 ; June, 2 ; July, 1 ; August, 1 ; October, 1. The medical officer reports that all the first 10 cases occurred among the men of the Royal Artillery, who were admitted shortly after arrival from the plains, where in all probability the disease was contracted. The other 6 cases occurred in the Infantry detachment, and no cause for them could be discovered.

At Fyzabad 16 men were admitted and all recovered. In the previous year there were 20 cases with 4 deaths. The medical officer suspected impure milk to be the cause of the disease, but could not give conclusive evidence in support of this suspicion. The water supply is from carefully covered and protected wells and is reported as of good quality.

Fifteen cases with 6 deaths are recorded at Dinapore, as compared with 9 and 1 in 1894. Six men were admitted in April, 1 in May, 2 each in July and August, 3 in October, and 1 in December, and all belonged to the 2nd Battalion Manchester Regiment, the average annual strength of which was 839, the 2nd Field Battery, Royal Artillery, with a strength of 107, not having a single case. No explanation of this difference could be given and no cause for the disease could be traced.

At Shahjahanpur 14 men were admitted and 4 died, as compared with 19 admissions and 5 deaths in the previous year. Eight were admitted in May, 3 in April, and 1 each in January, June, and September. The medical officer reports that all drinking water was boiled from 20th August. He, however, suspected impure milk to be the cause of the disease, the supply by natives not being satisfactory.

At Mian Mir the cases numbered 14 and the deaths 4. In 1894 the numbers were 60 and 14 respectively. Eight men were admitted in April and 2 each in March, May, and December. The medical officer writes:—"A "marked decrease compared with the previous year. The improvement at "the waterworks and the boiling of the drinking water has probably had "some effect."

At Dalhousie there were 14 cases with 3 deaths, as compared with 26 and 11 in the previous year. By months the admissions were:—In May, 7; June, 3; July, 1; August, 3. The medical officer reports that 4 men were admitted directly off the line of march and 5 shortly after their arrival, and he believes they contracted the disease en route from the plains. In one of these cases there was a history of drinking milk in a village on the way up. Of the remaining cases, one man, admitted in August, was a hospital orderly in attendance on cases of enteric fever, and the other four were patients in hospital for various diseases. These 4 cases occurred, 2 in June, 1 in July, and 1 in August. No cause for them could be discovered.

Thirteen cases with 4 deaths are recorded at Saugor, where in 1894 the numbers were only 4 and 2 respectively. Five men were admitted in March, 1 in April, 1 in August, and 6 in October. The first six cases were all in a draft which had just come by rail from Jubbulpore, where the disease was prevalent at the time. The cause of the other cases could not be traced.

At Sitapur 13 men were admitted and 1 died. The cases were spread over six months of the year and were in men residing in nine different barracks, and therefore had not any connexion with each other. The drinking water was boiled for several months during the year; nevertheless the admissions were more numerous than in the previous year, when they numbered 7.

At Ranikhet there were 12 cases with 3 deaths, as compared with 25 and 3 in 1894. Six men were admitted in June, 2 in July, 1 in August, and 3 in September. Of the cases 10 occurred in the 1st Battalion Hampshire Regiment, the average annual strength of which was 698, one in the standing camp, average strength 231, and one in the convalescent section, average strength 90. The medical officer reports that on 27th July a mussack was found in a cookhouse of the Hampshire Regiment, and in some water in it the enteric bacillus was discovered. This mussack was in the cookhouse contrary to orders, it was supposed to be used only for bringing water to the washhouse, from the spring used for the supply of ablution water.

Eleven cases with 5 deaths are recorded at Rangoon, where in 1894 the numbers were only 3 and 1 respectively. Three men were admitted in August, 2 each in September and November, and 1 each in January, April, May, and July. No cause could be discovered in any of the cases.

At Ahmednagar there were 11 cases with 4 deaths, as compared with 45 and 11 in the previous year. The admissions by months were:—In February, 2; April, 1; July, 5; August, 2; September, 1. The water for the troops was boiled from 7th March, but the medical officer reports that on 13th

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July unboiled water was found in the filters of the Royal Artillery, that the water was dirty and contained animalculæ and musquito larvæ; six cases occurred during the year in the battery and they were all admitted between 21st July and 17th August.

At Colaba, Bombay, 11 men were admitted and 4 died. Monthly the admissions were:—In February, 1; March, 1; August, 1; October, 1; November, 6; December, 1. The medical officer writes:—"The cases in "November formed a mild but distinct outbreak of the disease. In only one "instance did two cases come from the same barrack, so there was no special "incidence of the disease in any locality. The drinking water was the "municipal water supply conveyed to barracks in pipes and passed through "Macnamara filters. On the outbreak becoming manifest the drinking "water and milk were boiled. Great care was taken that cooks and kitchens "were clean. Only one case occurred after these measures were in force, up "to the end of the year . . . . . On examining the records of this hospital "for the past 13 years I find that there have been sporadic cases of enteric "fever at Colaba in every year, but in no previous year has there been so "many cases as in 1895. It may be said that enteric fever is to a slight "extent endemic here, and that during a part of last year it assumed a mild "epidemic form. As the medical history of Colaba cannot be separated from "that of Bombay city, to which the men have easy access, and where they "pass a good deal of their time, it may well to state that enteric fever in a "sporadic form exists amongst the European population there in most years; "and during last November, as in the case of Colaba, it assumed an "epidemic form. At this time, also, there was an outbreak of the disease on "board H.M.S. 'Magdala,' lying in the harbour. . . . . This co-"incident and widespread diffusion of the disease points to some condition "common to the Europeans in and about Bombay as its probable cause, and "I am of opinion that the outbreak at Colaba was probably not due to any "local insanitary condition."

At no other station did the number of cases exceed 10. The following extracts from the reports of some of these stations give all the information necessary regarding them:—Of 10 cases, 3 fatal, recorded at Deolali two were in men just arrived from England, and who when admitted had been in India only 2 and 13 days respectively.

At Ferozepore there were 10 cases with 5 deaths, 4 of the men were admitted in April, 5 in May, and 1 in June; 6 belonged to the wing of the 1st Royal West Surrey Regiment, 2 to the 71st Field Battery Royal Artillery, 1 to the 18th Company Southern Division, Royal Artillery, and 1 to the detachment Seaforth Highlanders. The drinking water for the wing of the Royal West Surrey Regiment was boiled from the beginning of July, but that for the other corps was not, yet all were equally free from the disease for the remainder of the year. Six of the 10 men attacked had been less than 6 months in India..

At Deesa 9 men were admitted and 3 died. The medical officer reports that a medical board, which assembled in March to inquire into the cause of the cases in the 55th Field Battery, Royal Artillery, concluded that there were two probable sources of the disease. (1.) Impure sand in the filters, which were re-charged in December 1894. The soldier who had hitherto attended to the filters had gone to England and his successor had left the collecting of the sand to a native, who, it is believed, to save himself trouble collected sand from an adjacent part of the river bed close to the village of Tekri, and consequently probably contaminated the filters. (2.) The milk and butter. In the battery these supplies were obtained from the bazar, whereas the infantry detachment had its own dairy. He further reports that as a result of the board's investigation the following precautions were adopted on 21st March:—(1.) The use of filters was stopped until they were disinfected and freshly charged. (2.) All drinking water was boiled. (3.) The latrine pans were all heated in a fire and then re-tarred. And he adds, "and the enteric ceased." The Principal Medical Officer remarks as follows:—"Considering that the battery in question left the station on 7th April, there is "not any evidence that the above-mentioned measures had any effect in "checking the disease. As a matter of fact there were 4 cases of enteric

" fever in the battery in April (admitted on 11th, 15th, 18th, and 30th " respectively) at Ahmedabad, to which station they had moved.

At Solon, where in 1894 there were 11 cases, 9 of which were supposed to be due to the proximity to barracks of the place where the night soil was then trenched, there were only 5 men admitted in 1895, of whom 1 died, and it is considered that they probably all contracted the disease before arrival at the station, as 2 were admitted 4 days, one 18 days, one 20 days, and one 28 days after arrival.

At Sialkot, where in the previous 9 years the numbers of admissions were, in 1886, 67; in 1887, 21; in 1888, 29; in 1889, 73; in 1890, 81; in 1891, 46; in 1892, 69; in 1893, 51; and in 1894, 22, there was only one case in 1895. This solitary case, which proved fatal, occurred in a man who had only just arrived from England and who evidently contracted the disease on the way up country. The medical officer is unable to give any explanation as to the very satisfactory absence of this disease at Sialkot, where it had been so prevalent for many years. He reports that the water supply, which is from wells, is exactly the same as in previous years and is distributed in the same way, *i.e.*, by means of mussacks. Also that there has not been any change in the ration supply, manufacture of mineral waters, or conservancy arrangements. The per-centage of young soldiers and of men recently arrived in India present during 1895 was about the same as the average of the previous 5 years.

Simple Continued Fever.—For this disease there were 1,427 admissions into hospital and 3 deaths, and the average number of men constantly sick was 69·99, being in the ratios of 20·9 per 1,000 for admissions, ·04 for mortality, and 1·02 for constantly sick, an increase of ·6, ·03, and ·12 in the three rates on the corresponding ratios of the previous year; compared with the average rates for the preceding nine years there is a decrease of 39·3 in the admission and one of 1·36 in the constantly sick rate, the death rate being the same. The highest rate of admission, 145·5, occurred, as in the previous year, in the Deesa District, the ratio for 1894 standing at 106·4 per 1,000, followed by 101·2 in the Aden District, which in the year before gave a rate of 32·4, the next being 69·1 in the Bundelkhand District, which was also third in the preceding year with 75·3. Except in the Secunderabad District, where there was no admission, the lowest rate, 2·0 per 1,000, occurred in the Meerut District, as compared with 5·7 in 1894; the next above being 2·2 in the Peshawar District, and the third, 2·6, in the Sind District, the respective rates for the year before being ·3 and 6·3 per 1,000. In addition to the districts already mentioned, in the Mandalay District the admission rate has increased from 2·6 in 1894 to 32·9 in the year under report. The 3 deaths occurred in the Aden District, giving a ratio of 2·89 per 1,000 of strength.

Cholera caused 44 admissions and 32 deaths, the equivalent ratios being ·6 and ·47, which are lower respectively than those in the preceding year by 2·3 and 1·63 per 1,000, and by 1·4 and ·95 than the average rates for the previous nine years. Abstract XVIII. shows the stations at which cholera occurred in each quarter of the year. It will be seen that 27 cases with 17 deaths occurred in the second quarter; 9, with 7 deaths, in the third; 8 cases, all fatal, in the fourth, and no case in the first quarter. The station at which the greatest number of cases occurred was Fyzabad, where 17 men were admitted and 11 died. The medical officer writes:—"16 of the cases occurred in an " epidemic form in the 2nd Battalion Highland Light Infantry, in May, the " first case being admitted on the 18th. There were 5 admissions on the " 19th, 7 on the 20th, 1 on the 21st, 1 on the 22nd, and 1 on the 23rd. On " the 20th 300 non-commissioned officers and men moved into camp at " Assafour on the Benares road, and no more cases occurred among this " body. On the 22nd the remainder of the regiment, with the exception of " 80 men, went into camp at Chandpur on the Sultanpur road. No more " cases occurred. . . . . Cases were admitted from 11 out of 19 barracks " occupied. . . . . A very careful inquiry failed to elicit any cause. " Whatever the cause was it was widespread in the regiment, and attacked " the occupants of different buildings quite indiscriminately. It is very " unlikely that water was the cause, as on the very day of the outbreak the " water of the only well used for drinking purposes was described by the " chemical examiner and bacteriologist to the Government North-Western

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"Provinces as being free from cholera vibrios. The same was reported of "the well after the outbreak. No sand was used either in the filter beds of "the well or in the Macnamara filters; only charcoal and burnt brick were "used in the latter. . . . . One striking feature in the epidemic is that "of the 16 men attacked 14 belonged to the Army Temperance Association. "These men got their supplies of butter, milk, and water from the same "source as the rest of the regiment, the two former articles coming from the "regimental dairy. It is probable that more milk was consumed by them "than by the rest of the regiment. . . . . Cholera appeared in the city "of Fyzabad at the beginning of April, when the city was put out of bounds. "Up to the 29th some of the regimental milkmen had been living in the city; "on the 29th of April grass huts were built for them in the regimental lines, "but it is not improbable that they frequently visited the city to see their "families, &c., and in this way the infection may have been brought. It is "certain that the epidemic was widespread in the regiment, and as the water "is not likely to have been at fault, it is fair, I think, to assume that the "milk may have been the agent, as this was the only other article of drink in "use by the men of the regiment in common."

The other case occurred in November in a man of the Royal Sussex Regiment. He had arrived in the station in advance of the regiment as a convalescent from dysentery. Only one barrack in the lines was occupied at the time. About a week after this man's admission the bacteriologist to the Government North-Western Provinces found cholera vibrios in some water from the floor of the cookhouse of this barrack. The man himself attributed his attack to having almost lived off guavas for two days before his seizure. Cholera was at the time prevalent in the city, and a good many cases occurred in the two native regiments in cantonments.

At Secunderabad there were 7 cases, 4 proving fatal. The first was admitted on 5th April from the cavalry lines, the second occurred on the 7th in a patient in hospital, and the third man attacked, on the 12th, was the chief warder of the military prison. On 10th May 3 men were attacked; they all belonged to S Battery, Royal Horse Artillery. The last case occurred on 30th May in a man of the Suffolk Regiment. No cause for the occurrence of these cases could be discovered.

At Mandalay 4 men were admitted, and all died. The first case occurred in September in a sergeant employed at Mandalay Shore cantonment as embarkation sergeant. The medical officer suspected the cause to be drinking of infected river water. The second case occurred in a gunner of No. 6 Mountain Battery, Royal Artillery, quartered on Mandalay Hill. The man was brought to hospital at 2 a.m. on 24th December suffering from colic and diarrhœa, and was placed in a ward with other patients. At 7.45 a.m. it was considered that his symptoms pointed to cholera, and he was at once isolated; he got gradually worse, and died that evening at 7.15 o'clock. The third and fourth cases were in men who occupied beds adjacent to that in which the gunner was from 2 to 7.45 a.m. on the 24th December. They were both attacked with choleraic symptoms about 2 p.m. on the 26th of that month, and died at 2 a.m. on 27th and 1.30 p.m. on 28th respectively. No evidence could be obtained to show in what way they contracted the disease, whether by direct contact with the gunner or otherwise. The gunner was suspected to have contracted it from some native from an infected village. A rifle meeting was in progress at the time on Mandalay Hill, and many natives attended the camp in various capacities. Two native drivers of the battery were attacked on the same day as the gunner.

Three fatal cases occurred at Mhow, two towards the end of September and the third early in October. The first case was in a sub-conductor of the Ordnance Department, and the attack was ascribed to drinking contaminated water from a chattie in the room in which he worked at the fort, as the bacteriologist to Government North-Western Provinces reported that he found the cholera microbe in a sample of water from that chattie. The two other cases were in men of the Durham Light Infantry, and no cause for their occurrence could be discovered.

At Shahjahanpur two cases occurred in August, and both proved fatal. The disease was prevalent at the time in a village bordering cantonments.

The bacteriologist to Government, North-Western Provinces, reported that the cholera microbe was absent from the drinking water of the troops, but that it was found by him (1) in a sample of water which had been used for washing up in the cookhouse of the company to which the man first attacked belonged; (2) in remains of food from the coffee-shop cookhouse where the second man attacked had his meals cooked; (3) in samples of milk supplied by the milk contractor; and (4) in a sample of water from the well on the premises of the milk contractor, who resides in the village above referred to.

At Benares there were two fatal cases, one in April, and the other in October, and there was one fatal case at each of the following stations:—Cawnpore, Fort William, Barrackpore, Dinapore, Ahmednagar, and Neemuch, and an admission each at Sitapur, Umballa, and Amritsar.

Dysentery.—There were 1,956 admissions for dysentery and 56 deaths, including 2 of invalids who had left the Command, being in the ratio of 28·6 and ·82 per 1,000, which are higher respectively by 2·0 and ·21 than the preceding year's rates; compared with the nine years' average the admission rate is lower by ·2, and the mortality rate higher by ·12. The average number of men constantly sick was 131·67, giving a ratio of 1·93 per 1,000, which is the same as in the previous year, but ·05 lower than the average of the preceding nine years. Abstract XIX. shows the prevalence of this disease in each military district in India, and Abstract XX. its prevalence in each quarter of the year. The highest admission rate, occurring in the Presidency district, was 82·8 per 1,000, which is an increase of 29·8 on the preceding year's rate, the second being 62·7 in the Madras district, an increase of 4·7, and the third 53·9 in the Secunderabad district, an increase of 18·4. In the previous year the three highest rates were in the Rangoon, Madras, and Presidency districts. The lowest ratio, 8·5 per 1,000, is observed in the Quetta district, as compared with 20·7 in 1894, the next above being 8·7 in the Aden district, a decrease of 25·6, and 13·0 in the Belgaum district, which with 10·2 was the lowest but one in the year before. Mortality was again highest in the Presidency district, 5·50 per 1,000, as compared with 1·50, and next in the Rangoon district, 2·31, as against ·98 in the last year. The lowest ratio was ·18 in the Rawal Pindi district, a decrease of ·30, next above being ·24 in Sirhind, ·52 less than in 1894. No mortality occurred in the Madras, Southern Bangalore, Belgaum, Sind, Mhow, Deesa, and Aden districts. Comparing the four quarters of the year as to seasonal prevalence of the disease, the highest admission ratio, 10·1 per 1,000, is met with in the third, followed in order by 7·7 in the fourth, 6·9 in the second, and 4·1 in the first quarter. The mortality rate was also highest, ·26, in the third quarter, and followed the same diminishing order as that of the admissions, namely, ·23 in the fourth, ·20 in the second, and ·11 in the first quarter.

At Dum Dum there were 86 cases with 6 deaths; monthly the admissions were, in January, 4; February, 3; March, 3; April, 5; May, 8; June, 6; July, 21; August, 22; September, 10; October, 1; November, 2; December, 1. The medical officer writes:—"In looking over the table of admissions "by months, it will be seen the two worst months were July and August. "The worst time was from 14th July to 14th August, in which interval 34 "cases were recorded. On the 24th August so severe was the type that I "recommended the immediate abolition of all Macnamara filters in barracks "and hospital, and the boiling of the drinking water instead. The effect "of this proceeding was as follows:—For the three weeks preceding the "28th August there were returned 20 cases of dysentery, while from the "28th August to the 13th September there were only 7 admissions, all being "mild cases. There is no doubt that the abolition of the Macnamara "filters had a most beneficial effect on the health of the troops."

At Barrackpore there were 42 cases with 5 deaths. The medical officer reports that the drinking water was boiled with satisfactory results.

The District Principal Medical Officer attributes the outbreak of dysentery at Dum Dum and Barrackpore to imperfect filtration of the water supply at the waterworks when the river was in full flood.

The *other diseases* of this sub-group included 554 cases of influenza (2 fatal), and 25 of mumps, a total of 579 cases with 2 deaths, the equivalent ratios being 8·5 and ·03, as against 3·8 and ·06 in the previous year.

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Malarial Fevers.—Under this head are included 21,927 admissions and 8 deaths due to ague, 852 cases of remittent fever with 20 deaths, 600 cases of malarial cachexia with 8 deaths, and a fatal case of Beri Beri, giving a total of 23,380 admissions and 37 deaths, with an average constantly sick of 857·78 men. There were also 2 deaths in invalids who had left the Command, one being due to ague and one to malarial cachexia. The ratio of admission, therefore, was 342·2 per 1,000, that of mortality ·57, and of constantly sick 12·55. The admission and death rates were 78·2 and ·02 per 1,000 lower than those of the previous year, and 19·7 and ·17 below the average of the preceding nine years, while the constantly sick rate was lower by 1·28 than in 1894, but 1·12 above the average rate. The greatest ratio of prevalence of these diseases in any district was 1829·8 in Sind, in excess of the previous year's rate by 1043·8, the Lahore district, which was third in 1894, coming next with 848·1, a decrease of 63·4, Peshawar, which had the highest ratio the year before, being third with 550·4, a notable decrease of 619·5. The lowest ratio, 70·2 per 1,000, occurred in the Belgaum district, which also stood lowest last year with 66·2; next above came 88·5 in Bangalore, which was also lowest but one with 96·0 in the year previous. Besides Sind, the Southern, Presidency, and Poona districts show increased rates of 108·2, 96·8, and 33·6 severally, but in no other district was the rate increased by more than 20·0. Of the districts having reduced ratios besides those mentioned, the most marked decreases were those in Quetta 456·3, Bundelkhand 260·9, Rangoon 216·5, and Deesa 206·4 per 1,000. Of the 37 deaths in India, 8 occurred in the Rawul Pindi district, 6 in Lahore, 3 each in the Peshawar, Mandalay, and Sind districts, 2 each in the Presidency, Narbudda, Poona, and Quetta, and 1 in the Oudh, Meerut, Sirhind, Rangoon, Bombay, and Aden districts respectively.

Septic Diseases.—There were 77 admissions and 7 deaths, one being that of an invalid, including 72 cases, 3 fatal, of erysipelas, 2 of phagedæna, 2 fatal cases of septicæmia, and 1, fatal, of pyæmia, to which cause also the death of the invalid was due, The ratio of admission was 1·1 against 1·9 per 1,000 in the preceding year and 1·6, the average rate for nine years, and that of mortality ·10 as against ·07 and ·09 respectively in the two comparisons. The districts contributing the largest number of cases were Quetta with 22, and Rawal Pindi with 12.

Venereal Diseases.—For *primary syphilis* alone there were 12,208 admissions into hospital, equivalent to a ratio of 178·7 per 1,000, which is higher by 5·5 than in the preceding year and by 62·0 than the average rate. The number of men constantly sick from this cause amounted to 1115·18, being in the ratio of 16·32, which is also higher than in the year before by 1·37, and above the nine years' average by 6·67. For simple venereal ulcer there were in addition 4,565 admissions, and 374·95 men were constantly sick, making a total of 16,773 admissions for primary venereal sores, with 1490·13 men constantly sick, and giving an admission rate of 245·5 per 1,000, a decrease of 2·8 on that of 1894, but an increase of 57·0 on the nine years' average, and a constantly sick rate of 21·80, an increase of ·44 and 7·18 respectively in the two comparisons. The admissions for *secondary syphilis* were 5,929, 15 deaths were recorded, and there were 603·79 men constantly sick. The admission ratio, 86·8 per 1,000, was higher by 12·1, that of mortality, ·22, by ·12, and that of constantly sick, 8·84, by 1·28, than in the preceding year. Compared with the average of the previous nine years, the rates of admission, death, and constantly sick have increased by 34·5, ·12, and 3·64 respectively. *Gonorrhœa* furnished 13,979 admissions, or a ratio of 204·6, with an average constantly sick of 1070·92 men, equal to 15·67 per 1,000. Here also an increase is noticed, viz., of 15·8 in the admission, and of 1·45 in the constantly sick rates as compared with 1894, and of 35·1 and 3·57 respectively as compared with the nine years' average. Taking all these forms of venereal disease together, the ratio of admission amounts to 536·9 per 1,000, which is more than that of the preceding year by 25·2, and in excess of the average rate by 127·6, while for constantly sick the ratio was 46·31, representing a loss of 3164·84 men to the efficient strength of the force from these diseases, higher than the rate in 1894 by 3·17, and above the average by 14·39. Comparing next the prevalence of the different forms of these diseases in the various districts, as shown in Abstract XV., the Oudh district, which stood third highest in the previous

year, gave the highest ratio of admission for primary syphilis, 305·3 per 1,000, exceeding that of the year before by 6·0; the next being the Rohilkhand district (also second in 1894) with 302·5, a decrease of 17·0; and third, the Belgaum district (which gave the highest ratio the year preceding) with 286·9, a decrease of 56·1. The lowest rate, 66·4, occurred in the Bombay district, a decrease of 46·3; the next above were 70·2 in the Peshawar district, which had the lowest ratio, 37·8, in the previous year, and 71·9 in the Nagpur district, a decrease of 100·1. Besides those mentioned, the admission rate decreased in the Sind district by 92·0, in Poona by 54·4, and to a lesser extent in other districts. The most notable instances of increase on the rates of 1894 were 147·3 and 107·9 in the Mandalay and Deesa districts respectively, the other districts having rates increased by over 50·0, being Allahabad, Rawal Pindi, and Rangoon. Secondary syphilis was most prevalent in the Rohilkhand district, the admission ratio being 159·7, or 40·7 in excess of last year's rate. The next ratio, 134·4, occurred in the Belgaum district, which was also second in 1894 with 135·8, followed by 125·3 in the Quetta District, an increase of 26·6. The lowest ratio of admission was 29·6 in Sind, a decrease of ·9; the next above being 36·0 in Nagpur, a decrease of ·6, and 39·5 in Aden, an increase of 13·8. Decreases in ratios of 44·6 and 33·9 occurred in the Bombay and Bangalore districts, but in no other districts was the decline over 10·0 per 1,000. The rates increased in 20 out of the 26 districts in India, the most important increases being 40·7 in Rohilkhand, 26·6 in Quetta, 25·7 in Peshawar, 24·5 in Lahore, 24·0 in Poona, 23·3 in Sirhind, and 23·2 in both the Allahabad and Mandalay districts. The highest ratio of prevalence of gonorrhœa was 313·0 in the Bundelkhand district, or 36·1 higher than in the previous year; the next, 302·5, in the Allahabad district, an increase of 47·1, followed by 290·2 in the Narbudda district, an increase of 96·8. The highest in 1894 was 308·5 in the Deesa district, which now furnishes a ratio of 222·2. The lowest admission rate was in the Aden district, 113·7, a decrease of 41·5, the next above being 124·8 in Bangalore, a decrease of only 1·4, and 140·4 in Peshawar, which occupied the same position last year with 184·9. The other districts having an admission ratio increased by over 50·0 per 1,000 were Sirhind and Poona, with increases of 65·3 and 64·0 respectively, while the only other district having a decrease above 50·0 was Bombay, where the ratio was 55·8 lower than that of the previous year. *India.*

The Principal Medical Officer states that at some stations these diseases were extremely prevalent, the following being instances of high admission rates for all forms of venereal diseases combined. Nowgong, 1013·5; Cawnpore, 967·6; Indore, 901·0; Calicut, 887·9; Dinapore, 847·0; Shahjahanpur, 834·4; Jhansi, 816·8; Malapuram, 816·3; Shwebo, 785·9; Poona, 775·2; Fyzabad, 766·0; Ranikhet, 746·8; Bareilly, 716·2; and Mhow, 703·2. There were in addition to the above 20 other stations at which the admission rate exceeded 600 per 1,000 of strength. Lamentable as are the foregoing figures they understate, as regards secondary syphilis, the amount of inefficiency due to that form of disease, as in several stations men were treated by hypodermic injections of mercury without admission to hospital. Many medical officers report that the type of disease was very severe, the following being extracts from some of their reports:—

"The syphilitic cases were of a most virulent type, and in most instances the health of those attacked was markedly impaired . . . . The course of many acute diseases was materially directed by syphilis. . . . . Many cases of ulcer of penis were accompanied by suppurating buboes, which often proved most intractable to treatment during the hot weather. . . . . Primary syphilis and gonorrhœa were often followed by large indolent or suppurating buboes; the latter were of frequent occurrence. . . . . The average duration of each case was 27 days, equivalent to a total loss to the service of 6 per cent. of the strength for 12 months. . . . . The type of the disease appears to have increased in severity. . . . . The type of syphilitic affections appears to be getting worse. Primary sores are more prone to take on sloughing action. Rupial ulceration and the prevalence of syphiloma are greater than formerly. . . . . As far as the efficiency of the army is concerned, if we judge from Bangalore, it is most seriously sapped by syphilis and its concomitants. A large proportion of men are ineffective in

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hospital, and a large proportion still in the ranks are able to get through their duty with constant visits to hospital under peace conditions, but would break down at once on field service, and encumber and hamper field hospitals."

The following are some of the remarks made by medical officers regarding the treatment of syphilis by hypodermic injections of mercury:—

"Hypodermic injection of mercury in secondary syphilis was again tried with success. . . . . 32 cases of secondary syphilis were treated with hypodermic injections of mercury with good result, except in one case. . . . . Nearly all the cases of secondary syphilis were treated with hypodermic injections of mercury with satisfactory results. . . . . In many cases hypodermic injections of mercury were given with marked benefit. . . . . Hypodermic injections of mercury were tried in several cases, but I did not find the method as satisfactory as internal administration. . . . . 78 men were treated for secondary syphilis as out-patients by hypodermic injections of mercury with excellent results. . . . . Selected cases of infecting sores and secondary syphilis were treated by hypodermic injections of mercury on the lines recommended by Surgeon-Major Love. On the whole the treatment has been favourably reported on, but sufficient time has not elapsed to form an opinion as to its being a more reliable method of administering mercury than by the mouth or skin. Considerable irritation was caused at the seat of injection in some cases, and severe salivation in a few cases. A certain number of cases having gone through a course of 5 to 8 injections and been discharged cured, have been re-admitted for secondary syphilis. . . . . Recent cases of secondary syphilis were successfully treated by hypodermic injections of mercury, but older ones with periostitis, &c., did not improve so rapidly under the treatment."

Under sub-group V. are included 3 fatal cases of *hydrophobia* as compared with 5 in the previous year. The cases occurred at Saugor, Madras, and Quetta. At the first-named station the patient was bitten by, evidently, a rabid dog on the 3rd January, when on the line of march. He had the wound cauterised immediately. He was admitted into hospital on the 18th February and died on the same day; four other men who were bitten by the same dog were sent to Paris to the Pasteur Institute. In the case of the man at Madras the disease was first noticed to develop on the morning of the 21st September; there is no history of his ever having been bitten, but he was in the habit of fondling dogs, even strange ones. At the post-mortem examination old scars on the right leg were the only marks that were noticed. He died on the 22nd September. The man at Quetta, while at field manœuvres on the 8th November, commenced to suffer from difficulty of swallowing, he was admitted into hospital on the 11th and died on the 12th November. No history of a bite could be obtained, but he had a slight scratch on the back of the right wrist which he could not account for, and it is presumed that the poison was introduced through an abrasion of the skin by a dog licking him.

Parasitic Diseases.—There were 171 admissions, which included 153 for tænia solium and 6 for tænia mediocanellata, giving a ratio of 2·5 per 1,000, against 2·9 in 1894 and 3·5, the nine years' average rate. The highest ratio was 7·5 in the Sirhind district, followed by 7·0 in the Belgaum and 5·5 in the Mhow districts. Excluding the districts where there was no admission, the lowest rates, ·4 and ·6, occurred in the Allahabad and Rohilkhand districts respectively.

Scurvy.—There were 54 cases of this disease against 13 the year before; the rate, ·8 per 1,000, being higher than that for the preceding year and the average by ·6 and ·1 respectively. Of the cases, 36 occurred in the Quetta district, 4 in the Sirhind, 3 each in Oudh and Meerut, 2 each in the Lahore and Mandalay districts, and on the line of march, and one each in Narbudda and Rawal Pindi.

Alcoholism.—There were 267 admissions and 8 deaths, including 14 cases of delirium tremens, 3 of which were fatal. The admission rate, 3·9 per 1,000, was lower than that of the previous year and the preceding nine years' average, by ·3 and 5·0 respectively. The highest ratio of prevalence was 9·9 in the Presidency district, the next 9·4 in the Deesa district, and then 7·7 in Aden. The lowest rate was ·9 in Peshawar, and the next above, 1·1, in the Mandalay district.

Debility, &c.—1,237 admissions are returned under Group C., of which 1,231 were for debility, under which heading the deaths of 3 invalids were returned. The admission rate, 18·1 per 1,000, is ·3 below that of 1894, and 6·7 lower than the average of the preceding nine years. There were 82·87 men constantly inefficient from this cause, in the ratio of 1·21 per 1,000, against 1·29 in the year before, and 1·62, the average rate. The highest ratio in any district was 48·0 in the Bombay, which was third in 1894 with 37·4. The next below was 36·6 in the Aden district, which stood highest the year before with 65·7. The lowest rate was 4·0 each in the Belgaum and Secunderabad districts, which were second lowest and lowest respectively in the previous year with 6·8 and 1·7, the next above being 4·8 in the Mandalay district, a decrease of 26·6. *India.*

For *rheumatism* 1,887 admissions are recorded, of which 64 were for rheumatic fever, and there were 3 deaths from the latter disease. The admission ratio, 27·6 per 1,000, was higher than in the previous year by 1·5, but lower than the average rate by 2·4. The death rate, ·04, was higher than in the year before by ·01, but ·02 below the average. The number constantly sick was 131·05 men, being in the ratio of 1·92 as against 1·98 in 1894, and 2·06 the average of the preceding nine years. The highest rate of prevalence, 39·6, was in the Lahore district, an increase of 8·9 on that for the preceding year; the Madras and Mandalay districts gave the next rate, 39·3 in each, an increase of 19·4 and 5·8 respectively, followed by Belgaum with 35·1, an increase of 13·9. The lowest admission rate occurred in the Narbudda district, 15·1 per 1,000, a decline of 4·6, followed by 15·7 and 18·4 respectively in the Bangalore and Rohilkhand districts, an increase of 1·8 on the rate for 1894 in the former and a decrease of 7·1 in the latter district.

Tubercular Diseases caused 323 admissions and 41 deaths, 15 invalids having died after leaving the Command, being in the ratios of 4·7 and ·75 per 1,000, as compared with 3·2 and ·79 respectively in the previous year, and 3·3 and ·83, the corresponding average rates of the preceding nine years. All but four of the cases, and all but three of the deaths, were due to lung affection. Every district, except Nagpur, had cases of these diseases, the Madras, Bombay (which was highest in 1894 with 22·1), Southern, and Secunderabad furnishing the highest admission ratios, namely, 35·5, 23·2, 19·3, and 16·6, an increase of 29·4, 1·1, 15·9, and 13·5 respectively on those of the year before; in all the other districts comparatively low rates are observed, varying from ·9 in the Rawal Pindi district to 7·8 in Deesa. Of the 36 deaths in India, 8 occurred in the Lahore district, 4 each in Narbudda and Meerut, 3 each in Allahabad, Bombay, and among troops on the march, 2 each in the Presidency, Oudh, and Sirhind, and one each in the Rohilkhand, Peshawar, Belgaum, Mandalay, and Aden districts.

Other diseases of Group D. gave 534 admissions and 6 deaths, including 1 of an invalid, the equivalent ratios being 7·8 and ·09 per 1,000, as compared with 7·9 and ·17 in 1894, and 11·0 and ·15, the respective average rates. The admissions were chiefly for anæmia (283) and non-malignant new growths, one was due to sarcoma, and there were 46 cases of scrofula, 6 of purpura, 3 of hæmophilia, and 4 of diabetes mellitus. The deaths were 3 from diabetes, including that of the invalid, and one each from anæmia, sarcoma, and lymphoma.

Local Diseases.—*Diseases of the Nervous System.*—542 admissions and 26 deaths are returned; the equivalent ratios were 7·9 and ·38 per 1,000, being ·1 lower and ·07 higher respectively than those for the previous year, while the admission rate is 2·9 below, and the death rate the same as the corresponding average rates for the preceding nine years. Of the total admissions 63 were cases of mental disease, equal to a ratio of ·9 as compared with 1·5 in 1894 and 1·8, the nine years' average. In five districts no case of mental disease occurred, viz., Peshawar, Belgaum, Mandalay, Mhow, and Aden. The highest admission ratio was 3·1 in the Nagpur district, followed by Narbudda and Madras with 3·0 and 2·8 respectively. In the previous year the highest ratios occurred in the Deesa, Rangoon, and Bundelkhand districts in the order named. The lowest admission rates were ·3, ·4, and ·6 in the Bangalore, Presidency, and Rohilkhand districts respectively. The only death from this disease occurred in the Poona district. Excluding cases of mental disease, the highest admis-

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sion ratios for nervous diseases, 20·5 per 1,000, is shown by the Bombay district, which also had the highest ratio, 20·3, in the year before, the next being 13·4 in Rangoon, an increase of 6·0, and 10·5 in Sind, a decrease of 2·2. The lowest ratios were 2·1 in the Nagpur district, a decrease of 6·3; 2·7 in the Southern district, a decrease of 3·5; and 2·9 in the Aden district, a decline of 1·9, from corresponding ratios in the preceding year, in which the lowest rate occurred in the Rawal Pindi district. The highest rate of mortality is noted in the Sind district, 2·63 per 1,000, the next below being in the Deesa and Rangoon districts, 1·56 and ·93 respectively as compared with *nil* in 1894. Excepting the Presidency, Rohilkhand, Narbudda, Bundelkhand, Madras, Southern, Belgaum, Mandalay, Bombay, Aden, Nagpur, and Quetta districts, where there were no deaths, the lowest mortality rates are recorded in the Rawal Pindi (also lowest in 1894) and Oudh districts, ·18 and ·22 respectively. The principal causes of admission were neuralgia 231 cases, epilepsy 63, vertigo 29, and diseases of the brain and its membranes 24. The deaths were due to inflammation of the cerebral membranes 9, inflammation of and hæmorrhage into the brain and its membranes 3 each, tetanus 2, and one each from pachymeningitis, paraplegia, acute ascending paralysis, and epilepsy.

Diseases of the Eye caused 762 admissions, being in the ratio of 11·2 per 1,000 as compared with 10·7 in the previous year and 13·3, the average rate of the preceding nine years. The highest rate of prevalence occurred in the Quetta district, 21·7, which is 11·3 higher than in the year before; the next in order being Mandalay with 21·2, an increase also of 11·3, and Bombay with 18·3, a fractional increase. The lowest was 5·6, in the Madras district, a decline of 3·3; then 5·9 in the Presidency, less by 4·3; and 6·7 in the Aden district, a decline of 5·7 from the ratio in 1894. Conjunctivitis was, as usual, the principal cause of admission, 523 cases of that disease being recorded, while of the others 30 were due to ulcer of cornea, 29 to myopia, 27 to iritis, 24 to stye, 18 to hæmatoma of eyelids, 13 to blepharitis, and 11 each to keratitis and congestion of optic disc.

Diseases of other Organs of Special Senses.—These were the cause of 948 admissions and 1 death, equal to ratios of 13·9 and ·01 per 1,000, the former being lower by 1·5 and 1·0 than the previous year's and the average rates, the latter being exactly the same in the two comparisons. The Sind district leads with 30·2 per 1,000, an increase of ·9 on the rate of the year before. Quetta with 26·3 and Bombay with 23·7 come next in order, being 10·1 and 12·0 higher than the previous year's rates. The lowest admission ratios were 4·1 in Nagpur, a decline of 5·7; 4·9 in the Bangalore district, a decrease of 1·5, and 6·7 in Aden, a decrease of 15·2. The only death, due to inflammation of the middle ear, occurred in the Rawal Pindi district. Of the cases included under this head 22 were of nasal affection, the rest being due to aural diseases, chiefly affecting the external meatus.

Diseases of the Circulatory System caused 637 admissions and 26 deaths, including 1 of an invalid, equal to ratios of 9·3 and ·38 per 1,000 respectively. The admission rate is ·3 higher than that of the previous year, but 1·6 lower than the average for the preceding nine years, while that of mortality is ·13 lower than that of the year before, but identical with the average rate. 60·27 men were constantly sick from these affections, being in the ratio of ·88 against ·92 and 1·11 in the two comparisons. The highest admission rate was, as in the preceding year, in the Bombay district, 56·7 per 1,000, this being an increase of 16·6 on the last year's ratio; the next was 18·5 in the Lahore district, also second in 1894 with 17·0; then 13·5 in Aden, an increase of 2·1. In the Belgaum district no admission occurred; the lowest ratio was 2·0 in the Southern district, a decline of 3·7 from that of last year, the next above being 2·1 in the Nagpur district, as compared with 11·0 in 1894; then 3·1 in Bangalore, a decrease of 2·2. The Aden district, as in the year previous, had the highest rate of mortality, 3·85 per 1,000, an increase of 1·95, followed by Madras with ·94 against *nil* in the preceding year, the next being ·72 in Sirhind, in which district also no mortality occurred during the year before; in 10 out of the 26 districts no mortality occurred. Palpitation of the heart was, as usual, the cause of a large number of admissions, 333 being recorded, and there were 154 cases of valvular disease of the heart, 48 of varix and 32 of phlebitis. The deaths in India were 11 from valvular disease, 2 each from

fatty degeneration, dilatation of the heart, and aneurysm of the aorta, and one each from pericarditis, endocarditis, hypertrophy of the muscular substance of the heart, inflammation of the muscular substance of the heart, angina pectoris, syncope, aneurysm of arteries, and rupture of artery. Valvular disease of the heart caused the death of the invalid. *India.*

Diseases of the Respiratory System were the cause of 2,296 admissions and 45 deaths, 5 of which were in invalids who had left the Command, giving the ratios of 33·6 and ·66 per 1,000 respectively. The former is ·1 higher than the rate of the previous year, and ·7 lower than the average rate of the preceding nine years, while the latter is lower in both comparisons, by ·42 and ·30 respectively. The number of men constantly inefficient was 118·34, being in the ratio of 1·73, against 1·77 in 1894, and 1·95, the average rate. The highest ratio of prevalence was 101·6 per 1,000 in the Peshawar district, which stood second in 1894 with 56·6, next in order being 79·9 in Quetta (which was highest in the previous year), a decrease of 10·2, and 63·7 in Rawal Pindi, an increase of 28·3. The lowest rate of admission, 11·0, occurred in the Deesa district, which was third lowest in 1894 with 18·2, next above being 11·4 in the Presidency district, a decrease of 7·4, and then 12·0 in Belgaum, or 7·5 less than in the year previous. Mortality was also highest in the Peshawar and Quetta districts, the ratios being 3·92 and 1·79 respectively, as compared with 2·70 and 4·96 in the preceding year; the third ratio was 1·62 in Bombay against *nil* in 1894. There was no death in 11 out of the 26 districts in India. Of the 2,296 admissions 1,785 were for bronchitis, 293 for pneumonia, 102 for pleurisy, 46 for laryngitis, 26 for spasmodic asthma, 17 for chronic pneumonic phthisis, and 11 for hæmoptysis, while of the 40 deaths in the country, 34 were from pneumonia, 2 each from bronchitis and pneumonic phthisis, and one from hæmoptysis and empyema respectively. Of the deaths of invalids, two were due to pneumonia and one each to bronchitis, pneumonic phthisis, and abscess of lung.

Diseases of the Digestive System caused 7,765 admissions into hospital and 122 deaths, three being in invalids who had left the Command. The equivalent ratios, therefore, were 113·6 per 1,000 for the former, and 1·79 for the latter, as compared with 115·5 and 1·89 in the previous year, and 133·6 and 1·82, the corresponding average rates for the preceding nine years. The constant inefficiency on account of these diseases was 330·35 men, equal to 4·83 per 1,000, against 5·16 and 5·61 respectively in the two comparisons. The ratio of prevalence was again highest in the Quetta district, 219·6 per 1,000, an increase of 37·1 on the last year's rate; next in the Lahore district, 156·8, an increase of 3·0, followed by Sind with 155·7, an increase of 38·3. The lowest ratio, 37·0, was in the Nagpur district, which was also lowest in the preceding year with 46·4, that in the Bangalore district, 67·3, being next above, a decrease of 23·7 from that for 1894, and next that in the Aden district, 80·0, a notable decrease of 55·3. The mortality rate was highest in the Madras district, 7·48, as compared with 3·32 in the preceding year, the second ratio, 3·49, being observed in the Peshawar district, an increase of 2·48, followed by 3·08 in Nagpur, which is 1·86 more than that of the previous year. No death occurred in the Belgaum district, and the lowest rate was ·22 in Lahore, 2·06 less than that of 1894, the next above being ·70 in Bangalore, an increase of ·34, and ·72 in the Secunderabad district, ·30 lower than in the year before. The principal causes of admissions were affections of the mouth and throat 2,601 cases, diarrhœa 1,427 hepatic disorders 1,819 (including 713 cases of congestion of liver, 489 of hepatitis, 419 of jaundice, and 146 of hepatic abscess), dyspepsia 707, piles 418, colic 313, and inflammation of stomach 105. The deaths in India comprised 97 from hepatic abscess (36 of which were associated with dysentery), 6 from various forms of intestinal inflammation, 4 of each from peritonitis and diarrhœa, 2 each from hæmorrhage from intestines and hepatitis, and one each from strangulation of intestines, jaundice, cirrhosis of liver, and congestion of liver. Two invalids died from abscess, and one from cirrhosis, of liver. Abstract XIX. exhibits the prevalence of and mortality from diarrhœa and hepatic diseases in the several districts in India, and Abstract XX. the prevalence of and mortality from these diseases in each quarter of the year. The ratio of admission for diarrhœa was 20·9 per 1,000, against 21·1 in the preceding year, and the mortality rate ·06 against ·04. The greatest prevalence was in the Sind district, which had a

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ratio of 59·8 against 24·1 in 1894, being the largest increase (35·7) in the year under report; the next was 43·8 in Deesa, an increase of 4·3, and then 39·0 in Lahore, 2·5 lower than that of the year before. The Rangoon district gave the lowest ratio, 2·3 per 1,000, as compared with 2·0 in the previous year, the next above being 5·1 in Nagpur and 5·2 in Bangalore, higher than in the year preceding by ·2 and 2·7 respectively. The greatest decrease occurred in the Aden district, the ratio, 6·7, being lower than that for 1894 by 39·0. Two deaths occurred in Sirhind and one each in the Lahore and Nagpur districts. The prevalence of this disease was greatest in the third quarter of the year, when the admission rate was 7·1 per 1,000, the next rate being 6·4 in the second, then 4·4 in the fourth, and 3·1 in the first quarter. Two deaths occurred in the second quarter, and one each in the third and fourth quarters. The ratio of admission for hepatic diseases was 19·9, and that of mortality 1·48 per 1,000, as compared with 18·6 and 1·27 in the preceding year. The rate of prevalence was highest in the Mandalay district, 45·6, an increase of 34·6, and next came Madras with 44·0, an increase of 19·6. Rangoon was third with 36·1, 27·7 more than that in the year before. The lowest ratio of admission was in the Quetta district, 6·4, or ·8 less than that for last year, the next above being 7·8 and 8·2 in the Rawal Pindi and Nagpur districts, lower by 4·7 and 7·6 respectively. Mortality was highest in the Madras district, the ratio being 7·48 as compared with 3·05, the next below being 3·49 in Peshawar, an increase of 3·15, followed by 3·02 in Narbudda, an increase of 1·56. Excepting Lahore and Belgaum, where there was no death, the lowest mortality rate was ·48 in Sirhind against 1·01 in the year before, next above being ·70 in the Bangalore district, and ·72 in Secunderabad, an increase of ·34 and ·04 respectively. With regard to the seasonal prevalence of these disorders, the highest admission ratio occurred in the third quarter of the year, 5·5 per 1,000, followed by 5·3 in the fourth, 5·1 in the second, and 4·0 in the first quarter. Mortality was greatest in the fourth quarter, viz., 36 deaths, or ·51 per 1,000, next in the third, 30, or ·45, followed by 19, or ·29 per 1,000, in the second, and 16, or ·23, in the first quarter of the year.

Diseases of the Lymphatic and Glandular System.—2,033 admissions and one death are returned, the admission rate being 29·8 per 1,000, which is an increase of 1·8 over that of the preceding year, but a decline of 2·3 from the nine years' average rate; the death ratio, ·01 per 1,000, is less in both comparisons by ·02. There were 238·74 men constantly inefficient, representing a ratio of 3·49, as compared with 3·16 in the previous year, and 3·48, the average rate for the preceding nine years. The admission ratio was 53·5 in the Secunderabad district, higher by 8·4 than that of the year before, while the two next, 50·2 and 39·1, were in the Presidency and Belgaum districts, an increase of 25·4 in the former, and a decline of 9·3 in the latter. The lowest rate, 8·1, occurred in the Quetta district, which stood last but one in 1894 with 17·1, the next above being 11·8 in Peshawar, a decline of 8·4, and 16·2 in the Rawal Pindi district, as compared with 20·3. Of the admissions, 1,861 were due to inflammation and suppuration of lymph glands, and 139 cases of disease of the spleen. The death was due to suppuration of lymph glands and occurred in the Presidency district.

Diseases of the Urinary System.—There were 133 admissions and 15 deaths, three being those of invalids; the admission rate was 1·9 and the death rate ·21 per 1,000, as compared with 2·1 and ·27 respectively in the previous year, the average rates for the preceding nine years being 2·1 and ·16. The highest ratio of admission, 9·2, was in the Bombay district, which also had the highest rate (6·3) in 1894; the next, 3·1, occurred in both the Peshawar and Deesa districts, as compared with 1·3 in the former and *nil* in the latter, followed by 2·8 in Madras against 1·1 in the year before. The highest mortality rates were 1·08, ·96, and ·66 in the Bombay, Aden, and Sind districts, as compared with ·90, *nil*, and ·57 respectively in the preceding year. The admissions were chiefly for nephritis, 49 cases being recorded, of which 9 proved fatal; inflammation of bladder caused 21 admissions, and incontinence of urine 20. Of the 3 remaining deaths, 2 were due to granular kidney and one to abscess of kidney, the deaths of the three invalids being caused by nephritis, Bright's disease, and urinary calculus respectively.

Diseases of the Generative System.—The admissions for these affections amounted to 5,314, and there was one death, the admission ratio being 77·8

per 1,000, as compared with 87·0 in the previous year, and 88·3, the average rate for the preceding nine years. 418·20 men were constantly non-effective, giving a ratio of 6·12, which is 1·01 lower than that of the year before, and fractionally higher than the average. The Nagpur district, which was the lowest with 7·3 the year before, now has the highest admission rate, 204·5; the Deesa district, also second in 1894, comes next with 212·8, an increase of 21·3, the Poona district being third with 177·1, a notable increase of 129·4. The lowest rate of prevalence was 6·0 in Belgaum, a decrease of 5·9; the next above were 8·5 and 9·8 in the Rawal Pindi and Secunderabad districts, a decline of 65·5 and 20·9 respectively. In the Allahabad and Mandalay districts, which gave the highest and the third rate in 1894, a fall of 95·4 and 118·5 respectively, is observed. Simple venereal ulcer accounted for no fewer than 4,565 of the admissions, and among the remainder the chief causes of sickness were 445 cases of orchitis, 95 of balanitis, and 63 of stricture of urethra. The death was due to extravasation of urine. *India.*

Diseases of the Organs of Locomotion.—There were 602 admissions and one death, equal to an admission ratio of 8·8 per 1,000, exactly the same as in 1894, but 1·4 higher than the average, and a death rate of ·01, lower by ·03 and ·02 in the two comparisons. The admission rates of the several districts ranged from 3·9 in Aden to 14·5 in Allahabad; the ratios of 14 districts exceeded those of the previous year, the greatest increase being 7·3 per 1,000 in Allahabad. Of the remaining districts the rate in Nagpur declined by 8·8 and that in Aden by 5·6. Synovitis alone caused 405 admissions; the death was due to psoas abscess.

Diseases of the Connective Tissue.—There were 1,672 admissions for these diseases, the ratio, 24·5 per 1,000, being higher than in 1894 by ·3 and than the nine years' average rate by 3·2. The three highest admission rates were 55·5, 38·1, and 33·5 in the Nagpur, Sind, and Bombay districts respectively, being higher in each case than those of the previous year by 40·9, 16·2, and 9·2, and the three lowest 15·2, 15·5, and 16·8 in the Bundelkhand, Rohilkhand, and Madras districts respectively, showing a decline in each instance of 10·6, 2·0, and 10·9 as compared with corresponding ratios in the previous year. There was no mortality under this head.

Diseases of the Skin.—The admissions numbered 4,422, and there was one death (from carbuncle). Eczema, ulcers, boils, whitlow, ringworm, and itch were the chief causes of admission, and together accounted for 3,944 cases. The ratio of admission was 64·7 per 1,000, lower by 2·1 than that of the year preceding and by 4·6 than the average rate for the previous nine years. There were 194·60 men constantly sick, the equivalent ratio per 1,000 being 2·85, as compared with 2·88 in the year before, and 2·86, the nine years' average rate. The highest admission ratio, 156·1, was in the Aden district, which stood second in 1894 with 129·5, the next being 118·3 and 111·1 in the Sind and Deesa districts, a rise of 22·2 and 23·0 respectively as compared with the year before. The lowest ratios were 30·1 in Belgaum, 20·8 less than in 1894, and 36·4 and 43·2 in Poona and Bangalore, an increase of 11·4 and 4·1 respectively.

Poisons caused 28 admissions and 7 deaths, as compared with 46 and 7 in 1894. Of the admissions 6 were for wounds caused by stinging insects, 4 by venomous animals, and 1 each by snake and scorpion; 9 admissions were due to partaking of poisonous food, 5 were caused by taking various poisons, 1 was due to alcohol, and there was a case of accidental poisoning with chloroform vapour. There were 4 deaths from alcoholic poisoning, and one each from opium (suicidal), poisonous meat, and chloroform vapour.

Injuries.—The admission rate was 99·7 and the death rate 1·75 per 1,000, as compared with 97·6 and 2·09 in the previous year, and with 108·4 and 2·23, the corresponding average ratios for the preceding nine years. The average number constantly sick was 312·89, equal to a ratio of 4·58, which is higher than in 1894 by ·04 and lower than the average rate by ·21. The number of admissions for general injuries was 266, and the deaths amounted to 92, against 250 and 98 in the year before. The admissions included 188 cases of heat apoplexy, 52 of sunstroke, 11 of multiple injury, 10 of burns and scalds, 3 of lightning stroke, and one each of asphyxia from submersion and from plugging of air passages with foreign substance. The deaths were 52 from heat apoplexy, 20 from drowning (18 accidental, 1 suicidal, and 1 doubtful), 8 from sunstroke,

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6 from multiple injury (2 suicidal), 4 from asphyxia from plugging of air passages with foreign substance, and 2 (both judicial) from asphyxia from strangulation. For local injuries there were 6,547 admissions and 27 deaths, the principal causes of the former being, as usual, contusions, wounds, sprains, and abrasions, which gave an aggregate of 6,016, among the more important of the remainder being 296 cases of fracture, 88 of dislocation, 57 of gunshot wounds, 38 of burns and scalds, and 16 of concussion of brain. The deaths comprised 12 from gunshot wounds (6 suicidal, 4 accidental, and 2 homicidal), 9 from fractures, 3 from contusion of abdomen with rupture of viscera, and one each from wounds, dislocation of spine, and compression of brain. In the cases of homicide the two men were shot by comrades.

There were 11 cases of suicide, as compared with 18 in 1894, 7 being due to gunshot wounds, 1 to drowning (jumped down a well), 1 to multiple injury (a man throwing himself out of a window while suffering from fever), 1 to opium poisoning, and 1 to fracture of vault of skull, the man having jumped out of a train in motion. In four cases the presumed motives were respectively loss of three relatives, excessive drink, trial by court martial, and drink and money troubles; in the remainder no motives could be assigned; in 8 cases the verdict was that the acts were committed while temporarily insane. There was an additional case of death by drowning, in which it is doubtful whether it was caused accidentally or otherwise. Three of the men were 22 years of age, one 23, two 24, two 26, one 27, one 28, and one 39. Two were of 2 years, one of 1, two of 4, one of 5, one of 6, two of 7, one of 8, and one of 25 years' service.

There were also 12 cases of self-inflicted injuries or attempts at suicide, of which 6 were cases of wound of throat and neck, one of gunshot wound, two men tried to hang themselves, and one to drown himself, while two took poison (opium and carbolic acid). In four cases the attempt was induced by drink; one case was attributed to a girl having jilted the man, one to domestic worry, and one man stated that he was sick of life and in debt. In one case the man tried to hang himself while he was a prisoner under trial, but it was discovered that he was suffering from melancholia; in the remaining four cases no motive or cause could be discovered.

Three hundred and twenty-seven surgical operations are recorded for the year, of which 314 were primary, and 13 secondary; death followed in 45 of the former, and in 1 of the latter. Amputation of the leg in two cases, for gunshot wound and for dislocation of the foot with fracture of tibia and fibula, was successfully performed. Record of successful amputation of toes for various causes in 10 cases; of the thumb in a case of gunshot wound; and of fingers in 4 cases (2 being gunshot wounds) is also made, but the two men who had fingers amputated for gunshot wounds had eventually to be invalided. Death followed after amputation of the upper arm in a case of gunshot wound, and after amputation of a finger in a case of severe lacerated wound of the hand; in both these cases tetanus was the cause of death. In a case of gunshot wound of the shoulder, the head of the humerus, with 4 inches of the shaft of the bone, was excised successfully, but the man was invalided, while excision of the astragalus in a case of dislocation resulted satisfactorily. Excision of the eyeball for various causes in 7 cases was successful, and recovery followed ligature of the superficial femoral artery for popliteal aneurysm, supra pubic lithotomy for calculus, and castration in two cases of secondary syphilis. Aspiration of pleura was performed in 6 cases of empyema, and in three of pleurisy, with successful results in 7 cases, a similar result following incision and drainage, and incision with removal of a portion of a rib in two other cases of empyema. Of 59 cases of hepatic abscess operated on, 39 ended fatally. Of these 59 cases, 21 (15 fatal) were treated by incision; 13 (6 fatal) by aspiration; 10 (7 fatal) by incision and drainage; 6 (5 fatal) by aspiration and incision; 3 (2 fatal) by incision, resection of rib, and drainage; 1 by aspiration and drainage, and 2 (fatal) by tapping and drainage. One case of abscess in which the liver was explored ended fatally, a similar result following in a case where the organ was first explored with a needle and then incised. In one of the cases treated by incision, although 95 oz. of pus were removed, the man made an excellent recovery and returned to duty, as did another whose abscess was treated by resection of a portion of a rib and drainage. Of the other operations, only those of successful removal of lymphatic glands in 46 cases are worth mentioning.

Invaliding.—The number of men sent home as invalids was 1,663, being in the ratio of 24·34 per 1,000, which is lower by 1·13 than that of the preceding year, and by ·04 than the decennial average. Taking the invaliding in the different arms of the service, as shown in Abstract XXVI., it is found that the invaliding ratio in the Cavalry was 22·06, a decline of 3·83 from that in 1894; in the Artillery, 31·32, or 4·16 more than in the year before, and in the Infantry, 23·85, a decrease of ·50. *India.*

Tables showing the influence of age and length of service in the country on sickness, mortality, and invaliding have been given on preceding pages, from which it will be observed that the invaliding rate was highest, 29·93 per 1,000, among men of over 40 years of age (who gave the lowest rate but one, 22·00, in 1894), and lowest, as is usual, in men under 20 years. Men of between 35 and 40 years (who had the highest rate the year previous, namely, 32·77) came second with 29·35, then those of between 20 and 25 years with 29·05; in men between 25 and 30 and 30 and 35 years the ratios were 19·80 and 17·16 respectively. In comparison with the ratios for the preceding year those for the year under report have increased by 7·93 among men of over 40 years and by ·19 among men between 20 and 25 years of age, while decrease is observed among those in the other quinquennia, the decline among men of 30 to 35, 35 to 40, 25 to 30, and under 20 years of age being 5·13, 3·42, 2·70, and 2·31 respectively. As regards the influence of length of service in the country, the highest invaliding ratio, 28·63 per 1,000, again occurred among men in their second year, as compared with 31·60 in 1894; the next below was 27·46 among those in their fourth year, who had the lowest rate, 20·91, in the year before; the third ratio 26·67, the fourth 25·04, and the fifth 23·18 occurred among men in their third and fifth years and those of over 10 years' service in India respectively; next below came 21·11, among men of between 5 and 10 years, and the lowest of all, 18·97, among those with less than one year's service in India. As compared with the ratios of the year before, those of men in their first and second year's service show a decrease of 5·49 and 2·97 respectively, while all the others are higher, the principal increases being 6·55 among men in their fourth year's service in the country and 4·47 among those of between 5 and 10 years; the rise in each of the remaining periods of service was fractional.

The principal causes of invaliding were 321 cases of secondary syphilis, being in the ratio of 4·70 per 1,000; 220 of malarial fevers, or a ratio of 3·22; 170 of debility, a ratio of 2·49; 137 of diseases of the circulatory system (including 64 of valvular disease of the heart, 42 of palpitation, and 7 each of phlegmasia dolens and varix, giving a ratio of 2·00; 107 of diseases of the digestive system (including 33 of hepatitis, 20 of hepatic abscess, 17 of hernia, and 15 of congestion of liver), giving a ratio of 1·57; 87 of tubercular diseases, or a ratio of 1·27; 64 of other diseases of Group D., which include 39 of anæmia and 16 of scrofula, giving a ratio of ·94; 68 cases of injuries, including 16 each of gunshot wounds and fractures, and giving a ratio of ·99; 57 of rheumatism, or ·83; 111 of nervous diseases, or 1·62, including 55 of mental disease, or ·80; 49 of dysentery, or ·72, and 41 of diseases of the organs of locomotion, or ·60 per 1,000 respectively. Compared with the corresponding ratios of the previous year and the average of the preceding nine years, an increase of ·42 and 1·47 respectively is noted under malarial fevers; of ·85 and 2·12 under secondary syphilis, and of ·11 and ·33 under other diseases of Group D. The ratio for debility was exactly the same as in 1894, but ·87 higher than the average. Decrease of invaliding rate occurred under dysentery of ·15 and ·35; under rheumatism of ·23 and ·14; under tubercular diseases of ·18 and ·12; under nervous diseases of ·80 and ·72, mental diseases alone having declined by ·75 and ·45 in the two comparisons; under diseases of the circulatory system of ·37 and ·79; under diseases of the digestive system of ·13 and ·47; under diseases of the organs of locomotion of ·09 and ·12, and under injuries of ·09 and ·07, as compared with corresponding ratios in 1894 and with average rates.

The number of men finally discharged as unfit for further service was 821, equal to a ratio of 12·01 per 1,000, which is lower than the corresponding rate in the previous year by 3·16, and than the average rate for the preceding ten years by 1·22. The principal causes of discharge were—dysentery, 13 cases,

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or ·19 per 1,000; malarial fevers, 40, or ·59; secondary syphilis, 119, or 1·74; debility, 48 cases, or ·70; rheumatism, 23, or ·34; tubercular diseases, 71, or 1·04; nervous affections 113, or a ratio of 1·65, including 72 cases, or 1·05 per 1,000, of mental disease; ophthalmic diseases, 31, or ·45 per 1,000; diseases of other organs of special senses, 38, or ·56; diseases of the circulatory system, 121, or 1·77; digestive disorders, 40, or 59; diseases of the organs of locomotion, 32, or ·47; and injuries, 44 cases, or a ratio of ·64. Compared with corresponding ratios for 1894, a decrease of ·34 is observed in the ratio for debility, one of 1·14 in that for nervous diseases (the ratio for mental affections alone having declined by ·78), one of ·82 in that for diseases of the circulatory system, and in others to a less extent, while an increase of ·33 has occurred in the rate for secondary syphilis and one of ·10 in that for respiratory affections.

Officers.—The average strength of the officers for the year was 2,037, the number of attacks of illness amounted to 1,678, the number of deaths to 26, and 116 officers were invalided to England. The ratio of sickness was 823·8 per 1,000, that of deaths 12·76, and that of invaliding 56·95, which compared with the corresponding rates in the previous year are lower by 35·3, ·26, and 11·39 respectively. Of eruptive fevers there were 14 cases, namely, 7 of small-pox, 4 of measles, and one each of cow-pox, chicken-pox, and epidemic rose rash. In 1894 there were 2 cases of small-pox. 49 cases of enteric fever occurred during the year with 12 deaths, as compared with 62 and 10 in the year before; 23 officers were invalided to England on this account and 4 remained under treatment at the end of the year. The ratio of attacks to strength was 24·0 against 28·8 in 1894, as compared with 22·6 per 1,000 among non-commissioned officers and men during the year under report, that of deaths being 5·89 against 4·65 in the preceding year, and 5·61, the death rate of the non-commissioned officers and men. The per-centage of mortality to attack was 24·49 as compared with 16·13 in 1894 and 24·8 among the non-commissioned officers and men. The cases were distributed over 34 stations, namely, 4 cases with 2 deaths at Bangalore, 2 and 2 at Poona, 5 with 1 death at Lucknow, 2 and 1 each at Jubbulpore, Subathu, and Secunderabad, and one admission and one death each at Allahabad, Shahjahanpur, and Karachi. There were 4 non-fatal cases at Umballa, 2 each at Bareilly and Rawal Pindi, and one each at Barrackpore, Benares, Cawnpore, Chaubattia, Agra, Jhansi, Meerut, Roorkee, Landour, Dagshai, Kasauli, Mian Mir, Sialkot, Campbellpore, Kuldana, Murree, Bellary, Shwebo, Kirkee, Kamptee, and Quetta. At Bombay the death occurred of an officer who was under treatment at the end of 1894. Other continued fevers gave a ratio of 49·1, being an increase of 4·5 on that of the preceding year. There was no case of cholera during the year against 4 with two deaths in 1894. Dysentery caused 63 cases of illness, equal to a ratio of 30·9, more by 7·2 than in the preceding year, but there was no death from this disease. Influenza contributed 35 cases, against 29 in the year before, and there was a fatal case of diphtheria. Malarial fevers, including 387 cases of ague, 75 of remittent fever, and 13 of malarial cachexia, gave a ratio of 233·2 per 1,000, being a decrease of 23·9 from that of the preceding year, and there were 2 deaths from remittent fever. Venereal diseases furnished a ratio of 18·2, which is a decrease of 5·5 from that of the previous year's rate, while debility and rheumatic affections each gave a ratio of 17·2, higher by 4·2 and by ·9 respectively than in 1894. There were 4 cases of tubercle of lung, one fatal, 3 cases of anæmia, and 2 of non-malignant new growths. Diseases of the nervous system furnished 14 cases, being in the ratio of 6·9 as compared with 9·8 in the preceding year; the cases included 7 of neuralgia, 2 each of wryneck and vertigo, one each of sclerosis of brain and insanity, and one, fatal, of hemiplegia. For diseases of the eye there were 21 cases, including 13 of conjunctivitis, and giving a ratio of 10·3, an increase of 1·9 on that of the previous year. 63 cases were due to diseases of the respiratory system, 52 of which were instances of bronchitis, 5 each of pneumonia and pleurisy, and one of empyema, the ratio, 30·9 per 1,000, being higher by 7·7 than that of the preceding year. Diseases of the digestive system furnished a ratio of 108·5 per 1,000, which is lower than that of 1894 by 17·5. Diarrhœa and hepatic affections were the principal causes of illness, the former giving 69 cases and the latter 58; one case of abscess of liver proved fatal, and there were 2 deaths from inflammation of stomach. There were 22

cases of affections of the lymph glands, 39 of the organs of locomotion (including 34 of synovitis), and 40 of diseases of the connective tissue. The ratio for diseases of the skin, 37·8 per 1,000, is less by 2·2, and that for injuries, 143·3 per 1,000, is greater by ·2, than in the year before. There were 16 cases of concussion of brain and 2 each of sunstroke and heat apoplexy. Of 4 cases of fracture of skull 3 proved fatal, and of five of gunshot wounds, one was fatal, an officer shooting himself whilst suffering from temporary insanity, motive unknown. One officer was killed by a bear and another murdered. The causes of invaliding were enteric fever 23 cases, malarial fevers 22, diseases of the digestive system 15 (including 8 of hepatic affections), debility 14, dysentery 6, diseases of the organs of locomotion 5, diseases of the respiratory system 4, nervous diseases, contusions, and concussion of brain 3 each, secondary syphilis, eye diseases, gunshot wounds, and fractures 2 each, and influenza, erysipelas, rheumatism, anæmia, phlebitis, abscess of connective tissue, poisoned wound from dog bite, sunstroke, heat apoplexy, and rupture of muscles one case respectively.

Women.—The average strength of the women was 3,194; there were 2,569 cases of sickness and 57 deaths. The admission rate was 804·3 per 1,000, and that of mortality 17·85, the former being lower by 123·4 and the latter higher by 3·28 than the corresponding rates of the previous year. There were 23 cases of and 3 deaths from eruptive fevers, 13 (3 fatal) being of small-pox, 9 of measles, and 1 of epidemic rose rash; in 1894 there was only one case of small-pox. For enteric fever there were 31 admissions and 8 deaths against 10 and 3 in the previous year; the admission and death rates, 9·7 and 2·50, were higher by 6·5 and 1·55 than in 1894. Of the cases 5 with 2 deaths occurred at Umballa, 2 cases and 1 death each at Secunderabad and Deesa, 1 fatal case each at Shahjahanpur, Meerut, and St. Thomas' Mount, 2 admissions each at Lucknow, Camp Gharial, Murree, and Kirkee, and one case at Barrackpore, Fort Allahabad, Benares, Cawnpore, Bareilly, Jubbulpore, Jhansi, Ahmednagar, Mhow, Nasirabad, and Deolali respectively, there was also a death at Allahabad of a woman who was under treatment at the end of 1894. Simple continued fever caused 43 admissions, being in the ratio of 13·5, which is an increase of 1·8 on that of the preceding year. There were 2 fatal cases of cholera agninst 5 admissions and 3 deaths in 1894. Dysentery furnished 75 admissions, equal to a ratio of 23·5 as compared with 15·5 in the previous year. There were 14 cases of influenza against 19 in the year before. Of 518 cases of malarial fever, 457 were due to ague, 42 to remittent fever and 19 to malarial cachexia, the ratio of admission, 162·2, being lower than last year's rate by 39·9; there were 5 deaths from remittent fever. Under septic diseases are recorded 6 cases of puerperal septicæmia, 4 of which proved fatal, and 1 of puerperal pyæmia. 737 admissions are recorded for debility, equal to a ratio of 230·7, a decrease of 42·3 from the rate of the year before, while for rheumatic affections there were 43 admissions, including 8 cases of rheumatic fever, the ratio, 13·5, being an increase of 1·5. There were 19 admissions and 5 deaths for tubercular disease of the lungs against 18 with 6 deaths last year. Anæmia gave 130 admissions, or a ratio of 40·7 against 44·7 in 1894, and one death occurred from this disease. There was a fatal case of carcinoma. Under local diseases those of the nervous system furnished 49 cases, comprising 25 of neuralgia, 13 of hysteria, 4 of epilepsy, 2 of paraplegia, and one each of inflammation of cerebral membranes, eclampsia, vertigo, megrim, and mania; 3 deaths occurred, 2 from eclampsia and 1 from inflammation of cerebral membranes. In the preceding year there were 82 cases and one death. Of 37 cases of ophthalmic disease, 34 were due to conjunctivitis. Diseases of the circulatory system gave 19 admissions and 3 deaths, as compared with 18 cases and 2 deaths in the last year; 4 of the admissions, one proving fatal, were for valvular disease of heart, and there was a death each from fatty degeneration of the heart and syncope. Diseases of the respiratory system with 14 admissions and 5 deaths gave an admission rate of 26·3 and a mortality rate of 1·57 per 1,000, against 35·5 and ·95 respectively in the preceding year; there were 71 cases of bronchitis with 1 death, 10 cases of pneumonia with 4 deaths, 2 cases of laryngitis, and one of hæmoptysis. Diseases of the digestive system accounted for 312 admissions and 5 deaths, being in the ratio of 97·7 and 1·57 per 1,000, lower than the corresponding ratios for 1894 by 10·3 and 1·28

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respectively. The principal causes of admission were dyspepsia 74 cases, diarrhœa 60, affections of the mouth and throat 59, and hepatic disorders 50, 2 of the deaths being due to peritonitis, and one each to lardaceous liver, abscess of liver, and ulceration of stomach. There were 264 cases and 5 deaths recorded under diseases of the generative system, the ratios being respectively 82·7 and 1·57 per 1,000, the former lower by 20·9 and the latter higher by ·62 than in the preceding year. The causes of admissions were, as usual, numerous, the largest number of cases occurring under abortion, 68, menorrhagia, 33, and abscess of breast, 20. One death each was due to pelvic cellulitis, hæmorrhage during pregnancy, premature labour, hæmorrhage from placenta prævia, and sudden death after delivery. Of the cases returned under the remaining classes of disease may be mentioned one fatal case each of sunstroke and heat apoplexy.

Children.—The average strength was 5,699, the number admitted 3,411 and the deaths 235. The ratio of admissions, therefore, was 598·5, and that of mortality 41·24 per 1,000, which are lower than the corresponding ratios in the preceding year by 133·7 and 3·65 respectively. Eruptive fevers caused 208 admissions and 7 deaths, as compared with 345 admissions and 8 deaths in 1894; the ratio of admission was 36·5 and that of mortality 1·23, being 24·3 and ·18 lower than the corresponding ratios of the previous year; 132 of the cases with 6 deaths were due to measles, 2 with 1 death to small-pox, 65 cases to chicken-pox, 4 to epidemic rose rash, 3 to scarlet fever, and 2 to cow-pox. There were 64 cases of whooping-cough with 2 deaths, against 44 with 1 death in the previous year; 3 admissions and 2 deaths from diphtheria, against one fatal case the year before; 9 of mumps with 1 death, and 15 of influenza, against four and no death for mumps, and 50 and 1 death for influenza in 1894. Enteric fever caused 29 admissions and 2 deaths, as compared with 12 and 4 in the previous year; at Shahjahanpur there were 2 cases and 1 death, a fatal case at Jhansi, 5 cases each at Cherat and Secunderabad, 4 at Bangalore, 2 each at Lucknow, Dagshai, Dalhousie, and Nasirabad, and 1 each at Murree, Peshawar, Mandalay, and Mhow. Simple continued fever furnished 152 admissions and 2 deaths, against 198 cases and 2 deaths in 1894. There were 3 fatal cases of cholera against *nil* the year before. For dysentery there were 81 admissions and 9 deaths, against 82 and 7 in the preceding year. Malarial fevers gave an admission rate of 128·6 and a death rate of 4·04 per 1,000, the former being lower by 6·4 and the latter higher by 1·75 than those of the previous year; the cases were 649 of ague with 6 deaths, 65 of remittent fever with 15 deaths, and 19 of malarial cachexia with 2 deaths. Erysipelas accounted for 3 admissions and congenital syphilis for 12, 2 being fatal, while parasitic diseases furnished 51 cases, against 65 in 1894. Under developmental diseases 268 cases and 35 deaths are returned, against 275 and 34 in the preceding year, 14 of the deaths being recorded under immaturity at birth and 21 under debility. As to the remaining admissions under general diseases there were 14 for tubercular disease with 9 deaths, 18 of anæmia, 1 fatal, 2 of rickets, 1 fatal, 5 of rheumatism, and 4 of scrofula. Among local diseases, affections of the nervous system are found to have caused 52 admissions and 34 deaths, as compared with 76 and 47 respectively in the preceding year, 36 of the admissions with 29 deaths being due to infantile convulsions, 4 (fatal) to inflammation of cerebral membranes, and 1 (fatal) to chronic hydrocephalus. Diseases of the eye were in the ratio of 35·8 per 1,000, lower than in 1894 by 40·8; of the 204 admissions all but 11 were for conjunctivitis. No case is returned under diseases of the circulatory system, but for those of the respiratory system the ratio of admission was 87·2 and that of mortality 3·68 per 1,000, as compared with 108·5 and 5·99 respectively in 1894. Among the 497 cases were 446 of bronchitis, 30 of pneumonia, 18 of croup, 2 of spasmodic asthma, and 1 of atelectatis; the deaths were 11 from bronchitis, 7 from pneumonia, 2 from croup, and 1 from atelectasis. The ratio of admission for digestive disorders was 105·8, as against 134·0 in the year before, the death rate, 12·81, being lower by 1·27. Of the 603 admissions and 73 deaths under this head were 234 cases of diarrhœa with 32 deaths, 179 of teething with 26 deaths, and 39 of inflammation of intestines with 13 deaths, the remaining fatal cases being one each of abscess of liver and peritonitis. The only cases that need be mentioned under the remaining classes of disease are 2 deaths each from

asphyxia from overlying and burns and scalds, and a death each from inflammation of lymph vessels, sunstroke, heat apoplexy, and poisoning from decayed meat. *India.*

Sanitary Conditions.

Bengal Command.—The Principal Medical Officer, Surgeon-Major-General T. Walsh, reports as follows :—

Presidency District.—Although at Fort William the general sanitary condition was satisfactory, defects existed in the Ravelin quarters in the conservancy arrangements, and in the water supply. The Ravelin quarters are reported damp, but the condition, according to the General Officer Commanding, "cannot be remedied." The water for drinking and cooking purposes is pure and filtered, derived from the Calcutta municipal works; that for ablution is pumped up from the Havildar's tank on the glacis of the Fort, and distributed without filtration. As the supply of the latter is on a most liberal scale, while that of the former is intermittent and limited, there is a constant risk of the impure tank water being drunk or finding its way into the food of the soldier. The District Principal Medical Officer recommends that the tank water be passed through a Pasteur filter until such time as it can be dispensed with entirely. Meanwhile the supply of municipal water is to be increased by laying down a larger pipe from the main. The extension of the municipal water supply to the Station Hospital had not been taken in hand before the close of the year, but it has now been completed, pipes having been laid on to the hospital kitchens as well as to the hospital. Dum Dum.—The District Principal Medical Officer remarks :—"'The insanitary surroundings of "the cantonment are again strongly commented on, and an attempt is being "made to bring the offending villages within the cantonment boundary." The incinerator worked well, but in view of the recommendation to incinerate all the night soil a new one is shortly to be built. Towards the end of the rains a severe outbreak of dysentery occurred among the troops. It was attributed to the water supply from the Calcutta municipal works, which is imperfectly filtered when the River Hughli is in full flood. The use of Macnamara filters was stopped, and the drinking water boiled with excellent results. Barrackpore.—There was an outbreak of dysentery similar in character to that at Dum Dum; it was attributed to the same cause, both stations having the same water supply, and similar measures to prevent the spread of the disease were adopted with equally beneficial results. Ague was prevalent throughout the year. The station is low lying, and during the rainy season many parts of the cantonments are converted into swamps. The drainage is a difficult problem, and is engaging the attention of the local authorities. The medical officer reports that several sanitary changes were effected during the year in the parts of cantonments outside the barracks in connexion with the disposal of sewage, house water, and road refuse. In previous years the night soil was buried in trenches 3 feet deep and 1 foot wide, and the ground not cultivated. The system now in use was introduced after ascertaining, by experiments conducted in the cantonment magistrate's garden, that the process of nitrification was exceedingly rapid in an average sample of Barrackpore soil. It differs from the old system in that the trenches are 8 inches deep and 3 feet wide, these are filled to 4 inches with night soil, and the ground subsequently placed under cultivation. In the native quarters the urine and house water were formerly allowed to flow into kachla (crude) drains and gullies, which were very foul, no method of removal being resorted to. During the year 2,670 feet of pukka (masonry) drains have been laid, and cement catch-pits, of a total capacity of 675 cubic feet, constructed. These are empted daily, and the contents removed to sites outside cantonments, where there is cultivation. Much still remains to be done, and will be undertaken in the ensuing year. The washing of clothes in the foul tank is liable to disseminate disease. To obviate the danger from this source, a station laundry is about to be established. An incinerator for the cremation of horses has been constructed. Darjeeling.—Malarial fevers were prevalent, owing, it is reported, to the majority of the convalescents sent to the depôt to recruit their health, being "saturated with malaria." Recent cases soon improve, but those with marked cachexia and with liver and spleen enlarged

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show no improvement, and are better sent home at once. The climate of Darjeeling being damp is not suited for cases of dysentery. No sanitary defects were brought to notice except a little crowding in barracks at times. The dining halls were used as dormitories. The cause of the crowding was due to the number of men sent up being in excess of the accommodation. The medical officer reports:—"Notwithstanding this, the health of the men "improved so rapidly that I did not consider it advisable to recommend "that fewer men should be sent up." Gnathong.—The station was abandoned on the 29th September. No insanitary defects were reported.

Allahabad District.—Allahabad.—The general sanitary condition is reported to have been satisfactory. The water supply is from the municipal works, and is of good quality. Fort Allahabad.—The municipal water supply is being extended to the fort; hitherto the water for drinking and cooking purposes has been carried from the nearest municipal stand posts. Dinapore.—The District Principal Medical Officer states that the station is low lying and swampy, and consequently malarious, and the bazars, which are dirty and overcrowded, are too close to the cantonment. Malarial fevers were prevalent during the autumn, but not to the same extent as last year. The water supply is from wells and is good and abundant, but liable to contamination. On the occurrence of a case of cholera among the British troops the water from the well which supplied the barrack filter, was found to contain the cholera microbe; the well was closed and treated with quicklime, and a fortnight later the Government bacteriologist failed to detect any cholera microbes in a sample of water drawn therefrom. Macnamara filters were done away with on the 7th October 1895, since when the water for drinking purposes has been boiled with beneficial results. New barracks are being constructed. Benares.—The medical officer attributes the malarial fevers, dysentery, and cholera which occurred to climatic and other causes common to most stations. Enteric fever was greatly in excess of any previous year, and could not be traced to any sanitary defect. The barracks and hospital are old and out of repair. Plans for new barracks and a new hospital are in preparation. The water supply is from wells; filters were discontinued and the water boiled from April to October. The District Principal Medical Officer states:—"The municipal "water supply will soon be available for this cantonment, and I understand "a constant supply will be laid on to each barrack by iron pipes. There will "then probably be no necessity for either boiling or filtering." Jubbulpore.—The general sanitary condition of the cantonments was satisfactory. Cholera was prevalent amongst the civil population from July to September, but the troops escaped. There was an outbreak of enteric fever in the garrison in March and April. The water supply is from a reservoir 5 miles distant, and is distributed by pipes to the barracks. Macnamara filters were in use in the barracks and hospital. The medical officer considers them unnecessary, since the pipe water is very good, and the filters are liable to introduce elements of contamination. The hospital accommodation was inadequate and had to be amplified by taking over an adjacent barrack. Pachmarhi.—The barracks and hospital are situated on well-drained ground. In the vicinity there are ravines covered with vegetation, and during the rains portions of the plateau not in the immediate vicinity of the barracks, are swampy and marshy. The District Principal Medical Officer is of opinion that these conditions may exercise a prejudicial influence on health. The sergeants' messes and the temperance room are too small, and four married quarters, which should be available for convalescents' families, are misappropriated by sanction for offices, school, &c., as no other accommodation is available. The water supply is from wells. That of the only well used for drinking purposes has been shown by several analyses to be of good quality. This well, though carefully protected, the District Principal Medical Officer regards as liable to contamination by percolation from an adjacent stream; he advocates the entire discontinuance of mussacks and puckals for conveying drinking water. A new well on an approved plan is being sunk in a central position in relation to the barracks. Three residential buildings and a mess block are being constructed for the accommodation of the officers of the musketry school. Several improvements were made during the year with respect to the water supply, the conservancy arrangements and the market, in the bazar and native quarter. The provision of an incinerator for the use of the

whole station has been proposed. Malarial fevers were very prevalent, mostly cases of ague &c., contracted in the plains. The station is said not to be suitable for cases of malarial debility. Saugor.—No insanitary condition was brought to notice. Ague was prevalent. Enteric fever also occurred, but was not traced to any sanitary imperfection. The water supply is from wells and is of good quality.

Oudh District.—At the several stations in the district, on the recommendation of the District Principal Medical Officer—(1) Macnamara filters were discontinued in all barracks and hospitals. (2) Additional tubs for storing water in barracks were applied for, *i.e.*, a galvanized iron tub or cistern with tap for each barrack block. (3) Orders were issued that all barrack water tanks, as well as kitchen tanks, be emptied and washed out once daily, and thoroughly cleansed and disinfected twice a week, either by boiling water or by permanganate of potassium, and that they should be securely locked after being filled. Lucknow.—This was the first complete year in which municipal water has been supplied, the works having been opened in August 1895. The supply is excellent but is intermittent, and the pipes are not laid on to the barracks and cookhouses. This, however, is to be done at once. Milk and butter are provided in barracks by regimental dairies, and in the hospital milk is supplied by the jail and butter from the bazar. As bazar products are unsatisfactory, and regimental dairies cannot be conducted properly unless the cows are the property of the corps, the District Principal Medical Officer is in favour of the establishment of a Government dairy like that at Allahabad. The cantonment is fringed by the insanitary suburbs of the native city and by villages, and the Sadar bazar is crowded with a poor population. With these exceptions the general sanitary condition was satisfactory. In the military prison the health of the prisoners was good, the diminution in the number of cases of malarial fever being attributed in part to the excellent water supply (municipal). One case of enteric fever was said to have been contracted in the prison; the cheese which was manufactured in the country was suspected, and was found to contain the enteric microbe; no country cheese has since been issued to the prisoners. Cawnpore.—The water supply is from a filter-tank well and is of good quality; it is distributed in open buckets; Macnamara filters were in use until 1st November 1895. The District Principal Medical Officer takes exception to the pumps being placed in the shafts of the wells, as the man who has to go down to oil the pumps is apt to pollute the water. Should the proposals to bring the municipal water into cantonments, and to extend the pipes to all the buildings be carried out, it will be a great boon. The station dairy worked satisfactorily. The waste water from the lavatories is to be distributed to the gardens. The introduction of the Allahabad system for the ultimate disposal of the night soil has been ordered. The hospital accommodation was insufficient, and was supplemented by the misappropriation of No. 8 married quarters, Infantry Lines.

Sitapur.—The barracks are situated on an open plain at a considerable distance from bazars, villages, and cultivation. A new hospital is under construction. The sick at present are treated in tents, and in a wing of the old building. The water supply is from filter tank wells, and is reported good by the Government analyst. The system of distribution by hand in galvanized iron buckets is not considered satisfactory. For several months, owing to the prevalence of enteric fever, the whole of the drinking water was boiled, as a precautionary measure, after being drawn from the filter tanks. A case of cholera that occurred was traced to the water used for washing dishes in the company kitchen and also in the kitchen of the coffee-shop. The water in question was drawn from wells forbidden to be used for drinking purposes, and was found to contain the cholera microbe. The use of this water was stopped at once with the result that the disease was confined to one case. It is understood that the waste water from the lavatories, instead of being run into catch-pits, is to be disposed of in gardens. The Garlick and Christiansen incinerator, erected last year, has been in constant use, except for a short period, while undergoing repairs, and performs its work in a most satisfactory manner. Fatehgarh.—The drain referred to in last year's report as under construction was completed early in the year and acts efficiently. The surface

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drainage of the barracks is reported to be above the average. The water supply is from protected wells, and is bacteriologically pure, but is distributed by bhistees. The health of the troops was good, and the sanitary conditions satisfactory. Fyzabad.—The District Principal Medical Officer reports that there is no remediable insanitary condition, or source of malaria, except that a portion of the site of the Infantry lines is very flat and requires draining, if funds are available. "The water is derived from two wells, one in the Royal "Artillery, the other in the Infantry lines, both provided with pumps, placed "in the shafts of the wells, an objectionable arrangement. The Royal Artillery "well is not sufficiently protected against dust, &c.; the Infantry well is "carefully closed in, the water reported pure and abundant, not filtered (on "my recommendation), conveyed in open iron pails to barracks. The use of "Macnamara filters was discontinued. Supply of iron tubs is not sufficient "to allow one per occupied block, consequently some blocks have not adequate "means for storing drinking water. The water supply of barracks in India "will never be really satisfactory until pure water is distributed by pipes to "barracks, kitchens, &c." Between the 18th and the 25th May 16 cases of cholera occurred in the Infantry lines, attacking men in 13 out of 19 barracks indiscriminately; the disease had been prevalent in the city since the beginning of April. The cause of the outbreak in barracks was not traced, and the water from the wells set apart for drinking purposes was found free from cholera microbes. "There are, however, other open wells in barracks which will "always be a source of danger from the liability to surface contamination." As milk is a possible source of infection, a system of station dairies under Government control is recommended.

Rohilkhand District.—Recommendations similar to those in the Oudh district were made by the District Principal Medical Officer with reference to the discontinuance of the Macnamara filters, and the storage of the drinking water. Bareilly.—The general sanitary condition of the cantonment has been satisfactory throughout the year. In winter troops were concentrated at Bareilly, those who could not be accommodated in the barracks being placed in tents, and at this period the hospital had also to be supplemented by tents.

The water supply is from protected wells, and, in the opinion of the medical officer, is pure and wholesome, and in no way related to the prevalence of enteric fever at the station. The District Principal Medical Officer, on the contrary, considers the present system of water supply faulty, and points out that the water is liable to pollution; a system water supply by pipes is under consideration. Shahjahanpur.—Four cases of cholera occurred among the troops, two in August, one in September, and one in October; the disease was prevalent in Dilagak and Jallalnagar, in the immediate vicinity of cantonments. Macnamara filters were discontinued, and the wells purified by permanganate of potassium; in this connexion the medical officer remarks that for a large well the addition of less than 4 oz. of the salt is useless for purposes of purification. The medical officer is of opinion that the boiling of the drinking water appeared to have a deterrent effect on the occurrence of enteric and other fevers as well as of dysentery. The water supply is entirely from protected wells. The District Principal Medical Officer recommends that the best wells should have pumps placed in an outside chamber, and the water distributed to barracks, kitchens, &c. by pipes. The milk supply, the medical officer reports, has never been satisfactory; that for the hospital has been obtained from a missionary dairy, and is of good quality; this dairy has not been able to provide for the requirements of the men in barracks, but it is hoped that it will be in a position to do so to the exclusion of native milk contractors. The disposal of the night soil by the Allahabad system did not answer during the rains, the area became offensive and deeper trenches had to be used. Naini Tal.—In April the Talli Tal barracks were converted into offices for the Bengal Command Headquarters. The Kalikhan barracks, which can accommodate 100 men, were retained for convalescents, the number of whom was reduced. The water supply for Kalikhan is taken from the lake by pipes laid out some distance from the shore, passed through a filter bed and drawn off from a hydrant, from which it is conveyed in puckals to the barracks. Macnamara filters have not been used; the water has been boiled and stored in the iron casks which formerly held the filters. The hospital water supply from the

municipal source is good but hard. The night soil is buried in pits on the hill side, but as the ground available for the purpose is limited, and as this mode of disposal is a possible danger to the people living below, an incinerator for the destruction of all night soil and refuse has been recommended. Ranikhet.—The water supply is from springs; it is good and abundant at its source, but the method of its distribution is considered faulty. The medical officer reports:—"The leather puckals used to convey the water to "barracks often give it a disagreeable taste and smell, if nothing worse, "galvanised iron mule tanks have been recommended pending a more "complete water scheme." That water from contaminated and unauthorised sources is at times introduced was proved by the discovery of the enteric microbe in a few drops of water taken from an empty mussack in the Army Temperance Association cookhouse on a very wet morning; water from various sources, both for drinking and washing, being at the time examined and pronounced free of the germ. The medical officer attributes the decrease in enteric fever to the increased supervision by European orderlies over the cookhouses and over the drinking water. There are certain minor defects in the drainage, and the urinaries and latrines at the standing camp are insufficient and situated at an inconvenient distance. Chaubuttia.—The District Principal Medical Officer reports minor defects in the flooring and accommodation of the canteen, in the latrines, and in the drainage near the institute, and notes the following requirements:—A verandah for the guard room to protect the sentries, store rooms or sheds for firewood, and tripods for receptacles in the urinaries. These several points have been taken up by the General Officer Commanding. The drinking water is from the forest spring, and is good, abundant, and protected at its source; its distribution in puckals is unsatisfactory. "The hospital is badly constructed, and has insufficient accommoda-"tion. Overcrowding was obviated by the use of tents, and the temporary "misappropriation of a barrack. A new hospital has been sanctioned."

Meerut District.—Meerut.—The site of the station is very flat, and the surface drainage faulty, in consequence after the rains, which are not heavy, water lodges and is said to be the cause of the prevalence of malarial fevers The recommendation to connect the Abu Nulla, the main drain of the station, with the Ganges canal has not been carried out up to the present. Several of the older barracks are being re-roofed with tiles; when completed this will be an improvement. The water supply is from wells and is reported good. One well situated in the British Cavalry lines had to be closed, as it was impure and found to contain several kinds of pathogenic microbes. In December there was a sudden outbreak of enteric fever in the Royal West Kent Regiment, no cause was discovered, but pending the result of the bacteriological examination of the water the boiling of the drinking water was sanctioned as a precautionary and experimental measure, and was in process of being carried out at the close of the year. Muttra.—The water is good but hard, and is derived from three filter tanks attached to three covered wells, it is distributed in galvanised buckets; mussacks are not in use. The barracks consist of four new bungalows and four old, the latter have thatched roofs, and have been condemned as insanitary; proposals have been made to replace them by more approved buildings. The old cook-houses are to be replaced by new ones provided with safes. The water from the wash-houses is run into absorption pits, which appear to work well; they need careful supervision. The hospital is equipped for 66 men, but has only cubic space for 48, it is well ventilated; tents have been used when extra accommodation has been necessary. A special ward, an isolation ward, and an officer's ward are said to be required, and the medical officer recommends a large stove in each ward, as they are very cold in damp weather. Delhi. Malarial fevers, as in previous years, prevailed during and after the monsoon. The water supply is of good quality, and is received from the Delhi waterworks, in connection with which a large enclosed tank has been built in the fort and water pipes laid on to the barracks and hospital. The station hospital is in the fort. For convalescents from fever a section hospital, to accommodate 30 patients, was opened from 1st August to 31st October at Hindu Rao's House on the Ridge. The Ridge is more elevated, further from the river, and healthier. Roorkee.—Malarial fevers and bowel complaints commenced with the outset of the hot weather, and prevailed with varying severity during the remainder of the year. There were no insanitary conditions present beyond the fact that

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Roorkee is a lowlying station, and there are large tracts of marshy land in the vicinity, which may account for the prevalence of these diseases. The water is from protected wells and is reported to be good. Landour.—The depôt is situated on an almost detached spur, and has an elevation at its highest point of 7,538 feet. The spur consists of three hills running from east to west; the first is occupied by military buildings, the second by private bungalows, and the third by the hospital and one or two private bungalows. The sanitary conditions are reported to have been satisfactory. The water supply is derived from a spring at the foot of the hill which flows direct into two large covered masonry tanks, and is conveyed up the hill to the barracks by puckal mules. The water is pure at its source, but its distribution by puckals is open to objection. Chakrata.—The water supply is reported to be chemically pure, and is obtained from a large spring on a mountain side 3 miles distant from Chakrata; it is conveyed in cast-iron pipes to tanks, from which it is distributed in puckals or mussacks to barracks. The medical officer writes—"The works for the supplying of Kailana with a pipe distribution are now proceeding." At Kailana the new officers' quarters and mess were finished and occupied, and a hut, used as a hospital store for the section hospital, was converted into a ward accommodating 21 patients; this arrangement saved much overcrowding in the station hospital. The hospital accommodation is still insufficient and had to be supplemented during the summer by misappropriating a barrack and using tents. The conversion of a barrack into a temporary hospital necessitated the day rooms being utilised as dormitories. The conservancy arrangements were satisfactory. The prevalence of enteric fever, in the opinion of the medical officer, was due partly to importation and partly to the men drinking water other than that provided for them.

Bundelkhund District.—Agra.—No sanitary defects were reported. The hospital accommodation is insufficient, but is supplemented by a barrack room when necessary. The water supply is from the municipal works, and is proved by frequent analysis to be wholesome. The health of the troops on the whole was good, and showed an improvement on the previous year. Enteric fever prevailed, but in no case was the cause traced home. Jhansi.—The medical officer reports that the station was in the same good sanitary condition as it was last year. The water supply is from protected well, and is distributed to barracks by hand in metal buckets; the quality is good. The new station hospital was taken over on March 1st, there are three blocks of buildings, one of which is not yet ready. The medical officer considers the accommodation in the new hospital insufficient, as it is only for 96 patients. There was no overcrowding during the year, as the old station hospital had not been given up, and tents were also used. Nowgong.—The surrounding country is flat, dotted with isolated hills; the rivers are at a considerable distance from cantonments, the water supply is obtained from wells sunk through red murrum (a loose gravel) and is as a rule pure. The filtering media of Macnamara filters, which were in use, have been specially treated - the charcoal being roasted, and the sand as well as the body of the filter washed with a solution of permanganate of potassium. In the bazar during the cholera epidemic permanganate of potassium and special iron buckets were obtained for all public wells, and it was proposed that no other vessels should be allowed for drawing water, but before the above arrangements were taken into use the epidemic had ceased. Cholera was prevalent in the station, but no case occurred among the British troops.

Punjab Command.—The following remarks are made by the Principal Medical Officer, Surgeon-Major-General R. Harvey, M.B., D.S.O., Indian Medical Service.

Sirhind District.—Umballa.—During the months of April and May enteric fever was prevalent. Owing to the regular water supply running short, water was taken from the masonry wells in the Royal Horse Artillery lines on May 6 to supplement the supply. In two of these, however, the microbe of enteric fever was discovered, and their use was at once stopped, and all drinking water boiled, and filters discontinued from the 10th of June. A marked diminution in the number of admissions for enteric fever at once followed. The Allahabad system of conservancy was introduced during the year with satisfactory results. Two incinerators were also employed—one, the Henry

Campion, consumed the rubbish and sweepings of the Sadar bazar, the other, the Henry, was utilised for the destruction of night soil in the camp of the Bedfordshire Regiment. The former answered its purpose admirably, but from the latter an offensive odour was evident at a distance of over three hundred yards to leeward. Dagshai.—There was a marked diminution in the number of cases of enteric fever as compared with the three preceding years. The enteric microbe was, however, detected in samples of the milk supplied to the troops. The use of incinerators was introduced during the year. Subathu.—A good and abundant supply of water is obtained from springs in the south end of the station; it is distributed by puckals and mussacks belonging to water carriers residing in the bazar. A recommendation has been made that the water should be brought into the station in casks and distributed in buckets. Kasauli.—The bazar, which was destroyed by fire, has been rebuilt on improved sanitary principles. Incinerators have been introduced for the disposal of night soil, and although somewhat unsatisfactory at first, have latterly, under careful supervision, been found to work well. Jutogh. — The sanitary condition was satisfactory. A good and sufficient water supply, properly protected from pollution, was derived from springs. Solon.—The bazar, which is in native territory, was in a most insanitary condition on the arrival of the troops, but on the matter being brought to notice most of the defects were speedily remedied. Pipes are being put down to bring the water, which is of excellent quality, into cantonments.

Lahore District.—Mian Mir.—The water supply is apt to be intermittent during the hot weather, and is liable to pollution at its source by impurities, which the settling and filtering tanks cannot be relied upon to entirely remove. A scheme is under consideration to change the source to either the Lahore waterworks or artesian wells. In the meantime all drinking water for British troops is boiled, and the use of filters is in abeyance. The Allahabad system for the disposal of night soil is employed and answers admirably; the trenching grounds are to leeward of the station and are perfectly inoffensive. Fort Lahore.—The present water supply is from wells and is of doubtful quality, but sanction has been obtained to connect the fort with the Lahore municipal water supply, and this will shortly be done. Ferozepore.—The surface drainage is deficient and difficult, otherwise the sanitary condition of the station is satisfactory. Good water is obtained from wells, many of which are covered, whilst all those for the use of British troops have parapets round them to prevent the reflux of spill water. Multan.—Water is obtained entirely from wells, most of which are of good masonry; all have parapets and most have covers. The solid excreta from the latrines are conveyed in carts to a patch of ground at a distance of a mile and a half from the British Infantry lines, where they are spread out and covered with ashes obtained by the burning of refuse. When sufficiently dry (four to seven days) this is collected in pits and sold to zemindars to be removed at their convenience. The dried product is quite inoffensive, but there is a strong stench during the process of drying. This system has been in force for years, but it is now proposed to introduce the Allahabad system, as there is plenty of ground available. Jullundur.—The water is obtained from a magnificent well in the British Infantry lines, which is completely covered in. The water is raised by means of an endless chain of zinc buckets worked by a windlass outside, and is conveyed in pipes to a large covered filter tank, whence it is delivered by stand-pipes. The risk of contamination up to this point is practically nil. The water is delivered from the stand-pipes into zinc tubs, and is distributed in mussacks. The surface drainage in the Royal Artillery and British Infantry lines has been improved during the year. The barracks in the Royal Artillery lines have been re-roofed and re-modelled. The conservancy arrangements are on the Allahabad system and worked well, although owing to want of funds the plant is not yet sufficient. Amritsar.—The water supply from wells is good; it is drawn and distributed in zinc buckets and is boiled prior to use. The moat surrounding the fort contains a small quantity of stagnant water and much decaying vegetable matter, and is said to become offensive during the hot weather. Representations have been made to have this remedied. In other respects the sanitation is satisfactory. Dalhousie.—The hospital accommodation is supplemented by the use of barrack rooms. No. 4

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barrack having been reported unsafe is being pulled down and will be replaced by huts. Night soil is at present buried in trenches, but an incinerator has been applied for. The water is distributed by means of pipes, and this arrangement will be extended to the standing camps before next hot weather.

Rawal Pindi District.—Rawal Pindi.—The new water supply is excellent in quality, abundant, and well protected from pollution. There have been more cases of enteric fever than in 1894, but less than in 1893. The surface drainage has been improved, and the Allahabad system of conservancy is being experimentally tried. Sialkot.—There was an almost entire absence of enteric fever during the year, only one case, and that imported, having occurred amongst British troops. The water is of good quality, and is obtained from masonry wells with parapets and covers. One wing of the hospital has been re-roofed. Campbellpore.—The soil is sandy and the subsoil drainage very good. The Allahabad system for the disposal of night soil has been introduced with satisfactory results. Attock.—The general sanitary condition of the station is satisfactory. The water supply is somewhat deficient in quantity, but this is being improved by re-opening a disused well for watering and washing purposes. Murree.—The new water supply is of excellent quality, and is distributed by means of buckets; filters are not used. The night soil is carried to the foot of the hill by wire tramway and buried in trenches. Kuldana.—The hospital accommodation is inadequate and is supplemented by the use of barrack rooms. The general sanitary condition is satisfactory; several new latrines have been erected during the year. Gharial, Thobba, Topa, and Khyra Gali.—The sanitary condition of these stations is satisfactory. They are supplied with water from the Murree waterworks. Ghora Dhaka. Kalabagh, Bara Gali.—At none of these stations have any sanitary defects been brought to notice.

Peshawar District.—Peshawar.—The water supply is abundant and chemically pure, but enteric microbes were discovered in a sample taken from the storage reservoir during November, although none were detected in the samples from the settlement tanks and filter beds. The water was at once boiled before use, and steps taken to purify the supply. The conservancy arrangements are satisfactory; the Allahabad system was experimentally introduced during the year. Nowshera.—A good supply of water is obtained from wells with raised parapets and covers. The general conservancy arrangements are in a state of transition, the removal system is about to be introduced in the bazars, and the Allahabad system is being experimentally tried. Numerous defects in detail have been pointed out and are now being remedied. Cherat.—The night soil is removed in carts and buried in trenches about 3 miles from barracks. An excellent supply of water is obtained from springs at Chuppri. Proper kitchens are required as cooking has to be done in the open air; these will be supplied as funds are available. Tents are used to supplement the hospital accommodation.

MADRAS COMMAND.—The officiating Principal Medical Officer, Surgeon-Major-General S. B. Hunt, Indian Medical Service, states that the sanitary condition of the various stations in the Command was on the whole satisfactory, and that improvements affecting the health of the troops were pushed on steadily as funds became available. Below are given extracts from his report:—

Bangalore District.—The sanitation of barracks has been well looked after. Bangalore may be said to have maintained its reputation as a healthy station for British troops. No cholera occurred amongst them during the year, although there was a sharp outbreak amongst the native civil population during August and September, and a native corps had a few cases. The evils of Bangalore not being a cantonment have been emphasized during the year in the matter of unhealthy bungalows occupied by officers, which are, as a rule, owned by native municipal commissioners, who oppose anything in the way of sanitary and other improvements. Five young officers were attacked with enteric during the year and three died. Two of these lived in houses owned by native landlords which were found to be in a very insanitary state. It is a pity that a large garrison like Bangalore should be deprived of the advantages and protection of cantonment rules. Military control ends with the barracks

and lines of the various corps. This unsatisfactory state of things has been brought prominently to the notice of the responsible authorities. The drinking water is still obtained from the slaughter-house well and is unprotected from pollution by natives; it has been boiled before use in preference to filtration since September with beneficial results. The question of providing a good water supply for the civil and military station has at last been settled; a scheme is now in operation to obtain drinking water from the Hassirghata reservoir constructed by the Mysore Government for its subjects. The defective accommodation in the Parade barracks still continues, but a scheme for the re-appropriation of certain buildings to accommodate about 200 single men is likely to be carried into effect soon. The accommodation in the Cavalry barracks is also insufficient and has to be supplemented, as in the Parade barracks, by utilising the verandahs for sleeping in, and by keeping a certain number of men under canvas. Colonel Brooke Anderson's pattern flues have been adopted in the kitchen of 19th Hussars with satisfactory results as regards cooking, cleanliness, and economy of fuel. New V-shaped surface drains have been constructed in the Cavalry horse lines and station hospital. Meat safes have been provided for the infantry cook-houses. A plan to increase the accommodation of the station hospital by 46 beds, to bring it up to the requisite limit for the garrison, is under consideration, and may soon be carried into effect. New quarters for the Army Hospital Corps, hospital assistant and hospital store-keepers, are in process of construction. The administration block of the section hospital is being converted into quarters for two assistant surgeons, the old assistant surgeons' duty room being turned into an office. Bellary.—Health of troops has been fair. Sanitation of barracks well looked after. There was a mild outbreak of enteric in July and August, the first for three years. No definite cause could be discovered, the cases being widely distributed. The water in use for drinking purposes is obtained from a deep but uncovered well outside barracks, from which it is drawn by bullocks and conducted by a covered conduit to reservoirs in barracks, whence it is drawn by hand and carried in puckals to the filters. This system of distributing water is very primitive and open to grave objection on account of the usually dirty condition of these puckals; they can never be kept thoroughly clean. It is desirable that pumps should be used for distributing the water from the reservoirs as well as for raising it from the main well. This has been recommended, and also that the well should be covered in. During the prevalence of enteric the method of drawing water by hand was looked upon as a possible cause of contamination; for two months all the drinking water was boiled, and the outbreak subsided. Cholera was prevalent in the district and town of Bellary during June, July, and August, but none of the European troops were attacked. In this, as in many other stations in the Command, the cookhouses are unprovided with flues. It has been recommended in all cases that Colonel Brooke Anderson's pattern (patent) flue might be provided, the general principle being a large flue into which others run from the several fireplaces, causing greater draught and more concentrated combustion, as well as allowing the smoke, dust, ashes, &c. to escape, which cannot take place with the present system. Ramandroog.—This is a small station situated near Bellary on the Sundur range of hills about 3,200 feet above sea level. It is open for four months in the year, March to June, for the reception of convalescents and men in need of a change from Bellary. The barracks were kept in a good state of repair and sanitation well looked after. New quarters for the Army Hospital Corps were built during the year.

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Southern District.—General health in this district has been fair, sanitation of buildings, &c. has been attended to. Wellington.—The fine climate of this station has done excellent work in setting up convalescents and young soldiers sent up from the plains. Unlike other hill stations in India, it is healthy and pleasant all the year round, and advantage is taken of this to acclimatise a regiment newly arrived in the country before sending it to a station in the plains. The barrack and hospital accommodation is not sufficient during the busy season—April to October—when men have to be put into tents, which is objectionable in the rains. The buildings have been kept in a good state of repair. A new cookhouse has been added to the sergeants' mess, and three double company cookhouses have been completed during the year. A new

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female hospital is in course of construction and will soon be ready for use. The station hospital is being remodelled so as to give extra accommodation for 16 beds; further accommodation is sanctioned and will be undertaken when funds are available. Cannanore, Calicut, and Malapuram.—The troops at these stations have enjoyed good health. The barracks have been kept in good order and in a sanitary state. No improvements worth noting have been carried out.

The vicinity of the barracks in Calicut (at the foot of the hill on which they stand) is fouled by natives using a tank there. It is contemplated to do away with this tank, but funds for the purpose are said to be wanting at present.

Madras District.—Madras.—The troops in Fort St. George have enjoyed good health. The buildings have been kept in as good sanitary condition as practicable. The Infantry barracks have been at times slightly overcrowded, to relieve which the lower story had to be occupied for occasional short periods. The same took place in the Royal Artillery barracks, but by the removal of the office of the Principal Medical Officer, Madras Command, from Fort St. George to Ootacamund last August, additional accommodation for 17 men was provided. The drainage of the fort by means of underground drains discharging into the moat has been found objectionable, the level of the water in the moat is usually above the outlet of the drains so that a good deal of backflow takes place. In the dry and hot season foul gases escape from the sewers as the water disappears from the traps, and thus renders them useless to prevent this. Surface drains have been recommended to replace the present ones. The stagnant water in the moat is most objectionable; a scheme to fill in this moat is understood to be assuming definite form. A new water supply for drinking purposes, derived from the "Red Hills," was laid on in December. It is, however, not considered safe to use this water without its being boiled. The supply is ample and constant. A scheme to reduce the hospital accommodation to 30 beds, by transferring mild cases as admitted to Poonamallee and St. Thomas's Mount, was carried into effect in April, and has worked very well. The old station hospital, which is situated in a wing of the Civil Hospital, will soon be replaced by a new 30 bed hospital with all necessary special wards, &c., for which funds have been sanctioned, and which is to be built on the glacis outside the fort walls. St. Thomas' Mount, Pallaveram, and Poonamallee.—The health of troops has been good, sanitary condition of barracks satisfactory. New quarters for Army Hospital Corps have been erected at St. Thomas' Mount during the year.

Secunderabad District.—The health of the troops has been fair. Sanitary condition of barracks on the whole satisfactory. Cholera was prevalent in the neighbouring bazars during part of the year, and a few cases occurred amongst the troops. Enteric, as usual, gave a large number of admissions, and the cause could not be satisfactorily traced. As a precautionary measure, the drinking water was boiled before use in the Cavalry barracks from April, and in the 2nd British Infantry lines and station hospital from June to the end of the year. This was followed by a diminution in the number of admissions for enteric from the corps concerned. The hospital accommodation has had to be supplemented during the year by using a spare barrack room. Sanction has been accorded to the increase of the section hospitals by 100 beds, which will meet all requirements. A new building containing offices for medical officers and clerks, a store-room, and waiting-room for patients, was added to the station hospital during the year. The lady nurses' quarters are reported to be objectionable on account of their proximity to the men's barrack rooms, making them very noisy during the day when the nurses require rest. It has been represented year after year that there is a certain amount of wet cultivation near the 2nd British Infantry lines which appears to conduce to malaria, but the nature of the surrounding ground does not appear to admit of a remedy, the expense of which, it is said, would be enormous.

Belgaum District.—The barracks, &c. have been kept in a sanitary condition and in good repair. The ventilation of the newly converted infantry barracks has been improved, but there is room for further improvement, which could be effected by means of windows opening on pivots opening over the back verandah doors. The lighting of the Royal Artillery barracks is not as good

as it might be, and the guard-room latrines require more ventilation. Some small wards for the treatment of special and infectious cases and a disinfecting chamber would be an improvement to the station hospital. The quarters for assistant surgeons and Army Hospital Corps are in many ways defective and require thorough repair or reconstruction. *India.*

Rangoon District.—Rangoon.—The barracks have been kept in good sanitary condition and fair repair. Some of the buildings occupied by the Royal Artillery are nearly worn out from age. The accommodation for the Royal Artillery is limited, 70 men have to be kept at Syriam, a fort on the Rangoon river, as there is no room for them in the Rangoon barracks. The accommodation for the sick is insufficient. The ground floors of the station hospital have frequently to be occupied, which is undesirable in the rains. In Rangoon, also, the drinking water is drawn from the wells by hand and carried to the barrack blocks by bheesties in mussacks, which is objectionable. Attention has been called to the fact that the wells require re-lining, as the surface and subsoil water can find its way into them. The men's urinals are made of wood and are difficult to keep clean. It has been recommended that corrugated iron should take the place of wood in the walls of these structures. Thayetmyo, Meiktila, and Port Blair.—Barracks have been kept in good order and in a sanitary condition. At Thayetmyo the wells have been improved, and fire ladders have been supplied to the station hospital. The officers' bungalows, which are in private hands, are becoming very dilapidated from age. At Meiktila the water supply is taken from a lake by means of water carts drawn by bullocks; these are driven into the lake, and it is said that the bheesties frequently wash themselves and their bullocks before filling the water carts. A pump on a stage in the lake and delivery pipes to the shore have been recommended in place of the present arrangement, which is objectionable and dangerous to the health of the troops. The men's bungalows are over-ventilated in the cold season, which has been brought to notice.

Mandalay District.—Mandalay.—The barracks have been kept in good sanitary condition and repair. Two new barrack rooms and subsidiary buildings have been built during the year in the Royal Artillery lines. The moat water supply has been the subject of a good deal of correspondence between the civil and military authorities during the year owing to the District Principal Medical Officer having drawn attention to its unsatisfactory character, with the result that a scheme for an entirely new supply is under the consideration of the civil authorities, and in the meantime the Public Works Department grant of Rs. 1,500 for maintenance of moat has been increased to Rs. 3,000, which will insure better protection and cleaning of the moat as well as the supply channel leading from the Anugbiule tank from which the water is originally derived. Owing to the suspicious character of the water, it has been boiled for drinking purposes the greater part of the year. The ground round the British Infantry lines is so level that the surface drainage is carried on with difficulty. It has been recommended to reconstruct and improve the present drainage system to remedy this. A certain amount of overcrowding in the married quarters has been relieved by placing a number of families in temporary quarters in the palace buildings. Shwebo.—Barracks and surroundings have been kept in good order. A new regimental institute has been sanctioned, and will probably be built during the ensuing year. The hospital accommodation is insufficient and tents have to be used to supplement it. Bernardmyo.—The closing of the road to Bernardmyo for movements of troops between April and December has had the effect of diminishing the admissions for malaria at that station. The road from Thabeitkyn passes through an extremely malarious terai, and nearly everyone who uses this road during the rains contracts a severe form of malaria. A swamp which formerly existed to the west of the Bernardmyo bazar has been drained with benefit to the health of the garrison. The buildings have not been kept in good repair. Everything at this station is of a makeshift nature. If it is to be permanently maintained, proper barracks and subsidiary buildings must be provided. Bhamo.—Sanitation has been attended to as far as practicable. The buildings have been kept in good order, but are unsatisfactory on account of being over-ventilated for the cold and wet seasons, a matter which has been brought to

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notice. The surface water is carried off by means of cemented drains, which discharge into nullahs around some of the bungalows. These cemented drains do not extend far enough, causing lodgments of water in the vicinity of the dwellings, which is a source of unhealthiness. It has been recommended that the drains be continued far enough to carry the surface water outside the fort.

BOMBAY COMMAND.—The Principal Medical Officer, Surgeon-Major-General J. Warren, reports as follows:—

Poona District.— Poona.—The sanitary condition of the barracks and hospitals has been satisfactory, and there has been no overcrowding. Owing, however, to the excessive prevalence of malarial fevers and venereal disease, the health of the troops has been bad. Ghorpurie furnished twice as many malarial fever cases as Wanowrie. This is partly accounted for by the position of Ghorpurie near black cotton soil and partly by the occupation of these barracks by a new regiment which had suffered a good deal from malaria at previous stations. There was also a considerable increase of enteric fever over the previous year, but the mortality was less. No local insanitary cause could be assigned for the outbreak in barracks or their vicinity, but the sanitary state of the bazar and city is most unsatisfactory, and has been constantly represented. On the appearance of the disease all drinking water was boiled before use. Two fatal cases occurred in the military prison, where the drinking water had been boiled for the past 2 years. One man had been employed emptying chamber pots for 3 months previous to his attack. The prisoners do not use the latrine when in their cells, and I believe that this arrangement is most insanitary. I have recommended that it be changed, but funds do not allow of electric bells and more warders. There were no structural changes during the year, none being necessary. The water supply is brought in by an open canal 12 miles from a large lake at Karak Wasla. The water of the lake is contaminated by villages and houses on its banks, and the open canal is not properly protected from pollution. The water is filtered at the works in Poona and distributed by pipes. It has always been found good when analysed, and the quantity is ample. I have recommended that the pollution of the lake and canal be prevented, and that the water be brought in by pipes. The conservancy in barracks is well looked after, but that of the Sadar bazar requires much more supervision, and the state of very many private latrines there is most objectionable. Kirkee.—The general health of the troops has been on the whole bad, due chiefly to the large prevalence of ague and venereal disease. The general sanitary condition of the station has been satisfactory, but the overcrowding of the infantry barracks, which are converted married quarters, continues, both the superficial area and cubic space per man being greatly deficient. The floors are not properly paved, and the outhouses are too close. This has been represented each year without result hitherto. The water supply is brought in by covered aqueduct and pipes from Pashan lake, 6 miles off. The lake is polluted by villages on its banks, and the water is not filtered and becomes very muddy in the rains. It has always been found good when analysed. I have recommended that the villages be removed and the pollution of the lake prevented. Arrangements for filtration are under consideration. Since 1st April the whole of the milk supply to troops has been obtained from the regimental dairy, and constant supervision is exercised to prevent adulteration. The hospital milk and butter are supplied by the Government farm. Recommendation has been made to change the present site of the Royal Artillery followers' latrines, which have become fouled. The new sites are to be paved, and a drain constructed to carry off the foul water. This will be carried out shortly. The sanitary condition of the hospital has been satisfactory, but there was some overcrowding during the rains. No epidemics occurred. The number of cases of enteric fever was greater than in the preceding year; no local cause could be detected. Ahmednagar.—The general health of the troops has been good, and the sanitary condition of barracks and hospital satisfactory. There was no overcrowding. Owing to two cases of enteric fever having occurred in February, the drinking water was boiled from 7th March to 6th October 1895. The water, if it was properly boiled, did not prevent a fresh outbreak occurring in July, and the same remark applies to

the military prison, Poona. Cholera was prevalent in the city and surrounding districts, but only one case occurred amongst the troops, which terminated fatally. It was contracted by the man while out in the district on a shooting pass. The water supply is drawn from a closed aqueduct, and local analysis of the water gave satisfactory results. This aqueduct is connected with wells along its whole course, from which the water is drawn in the ordinary way, and is liable to contamination at each opening. I have recommended that those openings be covered over, and that pumps be used to raise the water. An open stone drain was constructed from the married quarters of the infantry. A similar one from the Royal Artillery quarters is under consideration. Satara.—The general health of the troops has been fair, and there were no deaths. The sanitary condition of barracks and hospital has been satisfactory, and the water supply from a large reservoir, good. During the year thel ower room of the barrack in the fort was paved with stone, which is a great improvement on the old mud floor. The barrack kitchens require chimneys. This has been recommended. Purandhur.—The sanitary condition of the barracks and hospitals was satisfactory, and the health of the convalescents greatly improved by the change. The roof of two of the hospital wards is being raised, and clerestory windows are being inserted. Recommendation has been made to substitute a wooden for a cloth ceiling in another ward. No enteric fever cases were contracted at the station, but two cases arrived as transfers.

Quetta District.—Quetta.—The sanitary condition of barracks and hospital and the station generally was satisfactory. Malarial fevers were prevalent, but less so than in the preceding year, and the health of the troops shows an improvement. Enteric fever caused 28 admissions and 6 deaths. The water supply is good and pure, and is brought by pipes from a reservoir at Hanna, 13 miles distant. During the year many of the barracks and the hospital were floored with stone, new officers' quarters built and the married quarters remodelled. Two new reservoirs have also been constructed, for storing drinking water. Some of the barracks require better ventilation and the hospital requires two additional wards. Quarters are required for the senior and 6 assistant surgeons. Pipe water supply requires extension. All these are under consideration and will be carried out as funds are available.

Mhow District.—Mhow.—The general health of the troops compared favourably with that in the preceding year. The sanitary condition of barracks and hospital has been satisfactory, except ventilation of latrines, and surface drainage, which require improvement. Fevers were less prevalent. There were three cases of cholera—two in the Infantry Regiment and one in the Ordnance Store Staff. The latter was due to drinking impure water drawn from a tank in the fort. The Government bacteriologist afterwards found the cholera bacilli in this water. The tank was emptied and disinfected. No cause could be traced in the other cases. The water supply is good, and is brought in by pipes from a reservoir, five miles distant; it is not filtered. Recommendation has been made to construct filters at the reservoir. Recommendations have also been made to improve the surface drainage and the ventilation of the latrines. The conservancy of the barracks is good, but the arrangements at filth pits are unsatisfactory. The area of ground occupied is too small for cultivation. Recommendation has been made that a larger area be acquired, and that cultivation on the Allahabad system be followed. Nasirabad.—The sanitary condition of the barracks and hospital was satisfactory, except that the floors in the barracks are badly laid, and the urinals old and badly ventilated. There was no overcrowding, and the health of the troops was on the whole good. Fevers were less prevalent during the year. Enteric fever caused 21 cases and 7 deaths. The Dilwara water, used for drinking, and the Danta water, for ablution purposes, were both good and the supply ample. Recommendations have been made that the barracks be refloored and improvements made in the latrines and urinals, which are old and badly ventilated. These are under consideration, as is also that of an improved water supply. Neemuch.—The sanitary condition of barracks and hospital was good and there was no overcrowding, but the health of the troops was indifferent. Cholera of a severe type was epidemic in

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the neighbourhood and cantonment, but all possible precautions were observed with the best results, as only one case occurred amongst the British troops; this terminated fatally. During the epidemic all drinking water was boiled, and the wells disinfected with potassium permanganate. There was also an epidemic of influenza. Water is obtained from a covered well in the hospital compound, which has a filter attached to it. The floors of urinals and latrines are to be stone paved, and the insanitary condition of the bazar to be improved. Indore.—The health of the troops was indifferent, but, compared with the preceding year, it shows an improvement. The sanitary condition of barracks and hospital was good and the accommodation sufficient. Improvement of surface drainage and ventilation of the latrines is recommended. The water supply from a covered well is ample. Taragarh.—The sanitary condition was not satisfactory owing to the presence only 100 yards away from barracks, of a most insanitary village (500 inhabitants), each house having its own so-called "latrine." This has been represented to the civil authorities. There were 7 cases of enteric fever; 3 of these were imported and the remaining 4 are attributed to the want of supervision in the conveyance of drinking water from Ajmere, 3 miles off. It was this year carried up by bhisties, the Government mules having been sent to Chitral. The water supply was subsequently strictly supervised. It has been recommended that the filth pits be moved to another site, as they have been used for many years; this will be done. Khandwa.—The sanitary condition of the camp and its surroundings was satisfactory. Water is obtained from a covered well, and is pumped into an iron reservoir and then conveyed by pipes. There was no epidemic. Servants' quarters are not sufficient. This has been represented.

Deesa District.—Deesa.—The health of the troops has been bad owing to venereal disease. The sanitary condition of barracks and hospital was satisfactory, and there was no overcrowding. The water supply is good, and a pump is being constructed for the well from which water is taken for drinking and cooking. The Allahabad system of disposal of excreta is carried out. There was an outbreak of enteric fever, confined almost entirely to the Royal Artillery, whose milk came from the bazar, while that of the Infantry was under strict regimental supervision. The Royal Artillery milk supply was ordered to be strictly supervised with good results. Ahmedabad.—The sanitary condition of the barracks and hospital was satisfactory, but owing to malarial fevers the health of the troops was bad. Water at present is obtained from wells; it is good, but a scheme is in progress for bringing water to the cantonment in pipes from the city waterworks. Mount Abu.—The general health of the convalescents has been good, and many returned healthy. To ensure a good supply of milk cows are milked in barracks. The sanitarium is well suited for convalescent enteric cases.

Bombay District.—Colaba.—The sanitary condition of barracks and hospital was satisfactory. As the statistics of the permanent garrison are not kept separate from those of the depôt, the health of the station cannot be judged completely from the annual figures, the majority of the cases of sickness being transfers from other stations or off troopships. During the end of the year there was a slight epidemic of enteric fever. The milk supply being exceptionally good, suspicion was directed towards the water supply. No more cases occurred after the drinking water was boiled. Plans and estimates have been framed for a new three-storied hospital and it is to be commenced shortly. Deolali.—The sanitary condition of barracks and hospital was very satisfactory, but owing to venereal disease and ague the health of the troops was bad. Besides the Infantry detachment stationed at Deolali a large number of convalescents is also sent there. The health of the troops passing through has been good. The majority of the admissions were cases contracted at other stations, The water is obtained from wells; it is good. A well is being sunk in the hospital compound, this will be a great convenience, as it will avoid the carrying of water from a distance as heretofore. Nearly two-thirds of the cases of enteric fever were transfers from other stations. No epidemics prevailed. Khandalla.—The barracks and hospital were in satisfactory sanitary state. The convalescents sent up improved in health during their residence, especially convalescents from enteric fever. Suitable quarters are required for the assistant surgeon.

Aden District.—Aden.—The sanitary condition of the barracks has been satisfactory, but the hospital accommodation is very poor and insufficient. Notwithstanding the misappropriation of one barrack block for the hospital there was over crowding. A new hospital has been commenced at Steamer Point, and the accommodation will be ample; subsequently reconstruction of that at the Crater position will be considered. The health of the troops was indifferent owing chiefly to ague and venereal disease. The climate at this station was unhealthy and depressing till the middle of the year owing partly to increased rainfall; it improved somewhat afterwards. Recommendation has been made to cover the iron reservoirs for condensed water to avoid pollution. No epidemics prevailed.

Sind District.—Karachi.—The sanitary condition of barracks and hospital has been satisfactory, but the health of the troops indifferent throughout the year. This was due entirely to the prevalence of malarial fevers owing to the heavy rainfall and the great annual increase of water brought in by the water company, and consequent water-logging of the soil, the ground being very flat with most imperfect sub-soil drainage. The civil population also suffered equally with the troops, and vast works are in contemplation for improving the sanitary condition of the station, the foremost being limiting the amount of water used in irrigating gardens, checking waste surface and subsoil drainage, the drains to be emptied by pumps when sufficient fall cannot be obtained, filling up all tanks and depressions where water stagnates, and reclaiming tracts of low lying ground. The weather was very hot on June 18th, when 14 cases of heat apoplexy occurred, 2 fatal. The surface drainage in the vicinity of the Royal Artillery Barracks has been improved. It has been recommended that the upper rooms in the Royal Artillery Barracks be fitted with verandahs to shade the walls from the sun. This is under consideration. No addition or alterations were made to barracks or hospital during the year, but an independent supply of water direct from the tanks has been sanctioned for the hospital. Hyderabad.—The sanitary condition of barracks and hospital has been good and the accommodation ample. The quality of water is good, and it is to this that the station owes its immunity from cholera and enteric fever. On the whole the general health of the troops was bad owing to the prevalence of malarial fevers during the greater part of the year. The only improvement made to the buildings during the year was the putting up of wooden partitions in the hospital bath-rooms so as to afford more privacy to the patients while bathing.

Nagpur District.—Kamptee.—The general health of the troops was fair. Malarial fevers show a decrease, attributed by the medical officer in charge to the prophylactic issue of quinine to the troops during the unhealthy parts of the year. The sanitary condition of barracks and hospital was satisfactory, and no representation was necessary. The accommodation was ample, and there was no overcrowding. The water supply was ample and good. No epidemics prevailed. Sitabuldi.—The general health of the troops was good, also the sanitary condition of barracks and hospital. The terrace roof of the former leaked considerably whenever it rained heavily in the monsoon, and the consequent dampness of the rooms seemed to account for several cases of ague and dysentery. The defect was brought to notice and rectified. The water supply is obtained from a fortified well at the foot of the hill by pumping machinery. It is of fairly good quality.

Recommendations.—Water supply.—That in all stations not supplied with pipe-water from reservoirs certain wells be set apart for drinking water, and be put into thorough repair and covered in and fitted with pumps and reservoirs from which the water be laid on to barracks in pipes. That wherever reservoirs exist the greatest care be taken to prevent the pollution of the water in the reservoir and during its distribution. Filters.—That the Macnamara filters be replaced by the Pasteur-Chamberland filter in all stations.

Conservancy.—That the Bombay barrack regulations on the disposal of sewage, &c., and subsequent cultivation of the soil, be strictly enforced in all cantonments, unless the Allahabad system be adopted instead.

Bazars.—That no increase in the number of houses or the accommodation in any bazar be allowed, and that every opportunity be taken to reduce the

India.

same. That private latrines be strictly supervised, and only allowed when properly constructed and supplied with suitable receptacles.

Venereal Disease.—That some steps be taken to check the enormous increase in venereal disease.

Enteric Fever and Cholera.—That all drinking water and milk be boiled during the prevalence of these diseases in any station, and that the latrines be freely and regularly disinfected. That all wells used for drinking be disinfected with permanganate of potash.

XIV.—ON THE HEALTH OF THE TROOPS SERVING IN EGYPT AND CYPRUS.

Sickness and Mortality.

Egypt and Cyprus.

The average strength of British troops serving in the Command during the year was 4,680, including the average annual strength of Cyprus [176], that island having been added to the Egyptian Command in February. The force in Egypt was 4,504 warrant officers, non-commissioned officers and men; less by 722 than in the preceding year.

The troops in Egypt comprised the 2nd Dragoon Guards, 32nd Field Battery, Royal Artillery; the 16th Company, Eastern Division, Royal Artillery, from the 4th January, having arrived in relief of the 10th Company, Eastern Division; the 2nd Company Royal Engineers; the 1st Battalion East Yorkshire Regiment, until end of November, when it proceeded to India; the 1st Battalion South Wales Borderers, until April, when it left for Gibraltar; the 2nd Battalion South Staffordshire Regiment, until October, when it proceeded to India, having been relieved by the 1st Battalion of the North Staffordshire regiment from Malta; the 2nd Battalion South Lancashire Regiment till its departure for India, in the middle of February, being relieved by the 2nd Battalion Connaught Rangers, from Malta and Cyprus; the 1st Battalion Gloucestershire Regiment which arrived from Malta in October; the Mounted Infantry; detachments of Army Service Corps, Medical Staff Corps, Ordnance Store Corps, Army Pay Corps, Military Police, and Garrison Staff, throughout the year.

The garrison at Cyprus consisted of a detachment of the 2nd Batallion Connaught Rangers until October, when it was relieved by a detachment 1st Battalion Gloucestershire Regiment; there were also a few men of other corps, and Garrison Staff, throughout the year.

The general health of the troops in the Command was good, and compares favourably with that in the previous year, and with the average of preceding years. In Egypt the great improvement in health which had taken place in 1894 still continued, though in a less degree in the year under report. This is the more satisfactory as the changes of troops in the country were numerous, which is not generally conducive to a low sick rate. In most instances, however, the newly-arrived troops came from other stations in the Mediterranean, and not direct from home. In Cyprus the general health was very good, though the sick rates were not quite as low as they were in the preceding year.

The prevailing diseases in Egypt were, as in previous years, febrile and venereal affections.

The principal statistics of sickness, mortality, and invaliding in the whole Command are shown in the subjoined table, as well as those for Egypt and Cyprus separately:—

1895.	Average Strength.	Admissions.	Deaths			Invalids	
			In the Command.	Of Invalids.	Total.	Sent Home.	Finally Discharged.
Egypt - - - -	4,504	4,179	36	—	36	46	45
Cyprus - - - -	176	127	1	—	1	—	—
Command - - -	4,680	4,306	37	—	37	46	45

Egypt and Cyprus.

(*continued.*)

1895.	Constantly Sick.	Ratios per 1,000 of Strength.				
		Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
Egypt - - - -	289·53	927·8	7·99	10·21	9·99	64·28
Cyprus - - - -	5·92	721·6	5·68	—	—	33·64
Command - - -	295·45	920·1	7·91	9·83	9·61	63·13

Compared with the corresponding ratios for the preceding year, all the ratios for the Command (Egypt and Cyprus together) in the year under report show a decrease, being 80·1 per 1,000 in the rate of admission, ·19 in that of mortality, and 10·00 in that of constantly sick, and in comparison with average similar rates for the preceding ten years, the ratio of admission shows a decline of 235·5, that of mortality one of 11·20, and that of constant inefficiency through sickness one of 6·21 per 1,000.

The average sick time to each soldier was 23·04 days, which is shorter than the corresponding period in the preceding year by 3·65, and than the average similar period for the previous ten years by 2·27 days. The average duration of each case of sickness was 25·04 days, shorter than the similar period in the previous year by 1·65, but longer than the average period for the preceding ten years by 3·14 days.

Taking Egypt alone and comparing the statistics of sickness and mortality with those in the previous year, a decline of 122·5 per 1,000 is observed in the ratio of admission, one of ·62 in the death rate, and one of 12·81 in the constantly sick rate. Compared with corresponding ratios for the previous ten years, the admission rate is lower by 271·0, the death rate by 12·57, and the constantly sick rate by 8·14. The average sick time to each soldier amounted to 23·46 days, which is less than in the preceding year by 4·68, and than the average period for the previous ten years by 2·97 days. The average duration of each case of sickness was 25·29 days, shorter than in the previous year by a day and a half, but above the decennial average period by 3·24 days.

The health statistics of the two stations in Egypt at present occupied by British troops are given below:—

Stations.	Average Strength.	Admissions.	Deaths.	Ratios per 1,000.	
				Admissions.	Deaths.
Cairo - - - -	3,427	3,191	33	931·1	9·63
Alexandria - - -	1,077	988	3	917·4	2·78

Comparing the two stations, the admission rate in Cairo was the highest, in the preceding year the reverse was the case. The death rate in Alexandria was very low. In comparison with corresponding rates for the previous year, the rate of admission in Cairo has declined by 96·6, but there is an increase of 1·27 in the death rate. The ratios in Alexandria both show a decline of 223·8 and 4·90 respectively.

In Cyprus the admission rate was in excess of that in the previous year by 174·1 per 1,000, and the death rate increased by 2·23, but the constantly sick rate was lower by 3·73. Compared with the corresponding average rates for the previous ten years the admission rate is lower by 72·7, the mortality rate by 1·32, and the constantly sick rate by 9·98 per 1,000. The average sick time to each soldier was 12·28 days, which is shorter than the corresponding

period in the previous year by 1·36, and than the average period for the previous ten years by 3·64 days. The average duration of each case of sickness was 17·01 days, which is also shorter than in the previous year, and than the decennial average, by 7·91 and 3·04 days respectively. *Egypt and Cyprus.*

In Abstract XXV. are shown the statistics of sickness and mortality of the different arms of the service, and also of the separate corps which served in the Command during the year.

Among the arms of the service the Cavalry gave the highest admission rate, 1267·7 per 1,000, but it is less than that in the previous year by 78·6. The next ratio was 943·8, in the Infantry; this also compares favourably with the previous year's rate, showing a decline of 160·9. It was followed by the Artillery, 891·2, a slight increase, the Staff and Departmental Corps, 384·1, and Engineers 207·2, both of which compare favourably with last year's rates. The highest mortality rate, 15·87 per 1,000, was in the Staff and Departments, next came the Artillery with 12·09, followed by the Cavalry with 7·87, and the Infantry with 7·03, all of which are lower than the corresponding rates in the preceding year, with the exception of the first, which shows an increase. The death rate in the Engineers was *nil*. The greatest amount of inefficiency through sickness was in the Cavalry, 83·84 per 1,000, an increase of 10·52 on the previous year's rate; the next ratio was 64·72 per 1,000 in the Infantry, a decline of 18·39 from the corresponding rate in 1894; this was followed by 61·03 in the Artillery, a decline of 6·61, by 32·60 in the Staff and Departments, a slight increase, and by 12·25, the lowest, in the Engineers.

Of individual corps, that which gave the highest admission rate was the 2nd Dragoon Guards, stationed at Abbassiyeh, the ratio being 1267·7 per 1,000; next in order was 1113·6 in the 2nd Battalion Connaught Rangers, part of the year at Alexandria, with a detachment at Cyprus, and the latter part at Cairo; followed by 1065·5 in the 1st Battalion East Yorkshire Regiment, in Cairo, until its departure for India. Of corps with average annual strength of over 100 men, the 2nd Company Royal Engineers gave the lowest admission rate, 211·5 per 1,000, but the 1st Battalion Gloucestershire Regiment at Alexandria and Cyprus for two months gave the ratio next above, 462·8 per 1,000. The highest mortality rate among corps with an average annual strength of 100 men was 17·54 in the Medical Staff Corps, dependent on two deaths in a strength of 114; the next rate was 13·79, in the 1st Battalion South Lancashire Regiment at Abbassiyeh for two months prior to its departure for India, followed by 13·70 in the 16th Company, Eastern Division, Royal Artillery. In the Engineers no death is recorded, and there were low rates, 4·39 and 4·73 respectively in the 1st Battalion South Wales Borderers and 2nd Battalion Connaught Rangers; the former regiment left for Gibraltar in April. The rate of constant inefficiency was highest in the 2nd Battalion South Lancashire Regiment, 84·05 per 1,000, followed by the 2nd Dragoon Guards with 83·84 and the 2nd Battalion Connaught Rangers with 76·33; the 2nd Company Royal Engineers had the lowest ratio of constantly sick, 12·02 per 1,000, the ratio next above being 21·22 per 1,000, in the 1st Battalion Gloucestershire Regiment.

The sickness and mortality among the troops, arranged according to the ages of the men, are shown in the following table:—

Ages.	Average Strength.	Admissions.	Deaths.	Invalids.	Ratios per 1,000.		
					Admissions.	Deaths.	Invaliding.
Under 20 years	384	238	4	2	619·8	10·42	5·21
From 20 to 25 years	2,354	2,936	16	23	1247·2	6·80	9·77
„ 25 „ 30 „	1,478	990	12	14	669·8	8·12	9·47
„ 30 „ 35 „	312	90	1	5	288·5	3·21	16·03
„ 35 „ 40 „	120	38	4	2	316·8	33·33	16·67
Over 40 years	32	14	—	—	437·5	—	—
Total	4,680	4,306	37	46	920·1	7·91	9·83

Egypt and Cyprus.

It will be seen from the above that the highest admission rate was among men between 20 and 25 years of age, falling to about half among men between 25 and 30 years of age, and still further among men in the next quinquennium, after which the rate rose again. In the preceding year the highest admission rate was among men under 20 years, and there was a gradual decline throughout; comparing the ratios with those in the previous year, a decrease is observed in all up to 35 years of age, but in the rates among men between 35 and 40, and over 40 years, an increase has occurred. Mortality was high, as in 1894, among men under 20 years of age, falling among men between 20 and 25 years of age and increasing in the next quinquennium. The highest rate was among men between 35 and 40 years, but this was due to 4 deaths, occurring in a small average annual strength. Compared with corresponding ratios in the previous year, a decrease has occurred in the death rates of men under 20 years of age, of men between 20 and 25, and of men between 35 and 40 years, but an increase is observed at other ages.

With regard to the influence of service in the Command on sickness and mortality amongst the troops, the following table has been compiled:—

Length of Service in Command.	Average Strength.	Admissions.	Deaths.	Invalids.	Ratio per 1,000.		
					Admissions.	Deaths.	Invaliding.
Under 1 year - -	2,331	2,384	20	13	1022·7	8·58	5·15
From 1 to 2 years -	1,073	833	9	11	776·3	8·39	10·25
„ 2 „ 3 „ -	964	910	7	16	944·0	7·26	16·60
„ 3 „ 4 „ -	146	109	1	3	746·6	6·85	20·55
„ 4 „ 5 „ -	78	34	—	4	435·9	—	51·28
„ 5 „ 10 „ -	84	36	—	—	428·6	—	—
Over 10 years - -	4	—	—	—	—	—	—
Total - -	4,680	4,306	37	46	920·1	7·91	9 83

From the above it will be seen that the highest sick rate was among men in their first year of service in the Command; the rate then fell a good deal, though it rose again among men in their third year of service, after which it declined steadily. In the previous year the high ratio extended to men in their second year of service in the Command, and then the decline took place. Compared with corresponding rates in the previous year, a decrease occurred in the ratios of men in their second and fifth year of service, and in that of men between 5 and 10 years' service, but there was an increase at the remaining periods. The highest death rate was among men in their first year's service, the next being almost as high, with a slight decrease in the rates of men in their third and fourth years of service. In the preceding year there was no resemblance in sequence to that in the year under report, the highest rate being among men between 5 and 10 years' service, the next among men in their second year, followed by that among men in their first year.

The more important of the statistics relating to sickness, mortality, and invaliding among the troops, arranged according to the various groups and orders of diseases, will be found in Abstract XXI.

General Diseases.—*Diseases dependent on Morbid Poisons.—Eruptive fevers* caused 12 admissions, five for small pox, and seven for scarlet fever. Four of the cases of small pox occurred in Cairo. All were modified and recovered. The fifth occurred at Alexandria, in a man just arrived from Malta, where it is believed he contracted the disease; the case did well. Of the admissions for scarlet fever, six occurred in Cairo and 1 in Alexandria: the cases were probably contracted in the towns.

Enteric Fever was the cause of 76 admissions and 13 deaths, and 18·51 men were constantly sick on this account. The ratio of admissions, therefore, was 16·2, that of mortality 2·78 and that of constantly sick 3·96 per 1,000. Comparing these with corresponding ratios for the previous year a decline of

5·0 is observed in the rate of admission, one of 1·24 in the death rate and one of ·13 in the constantly sick rate. Compared with similar average results for the preceding nine years, the improvement is marked, showing a decrease of 17·7 in the rate of admissions, one of 6·16 in that of mortality, and 1·31 in that of constant inefficiency. The per-centage of mortality to attack was 17·1 as compared with 18·9 last year, and an average per-centage for the past nine years of 26·4. *Egypt and Cyprus.*

The relative sickness and mortality from enteric fever in the two stations, Cairo and Alexandria, is shown below :—

Stations.	Average Strength.	Admissions.	Deaths.	Ratio per 1,000.	
				Admissions.	Deaths.
Cairo - - - -	3,427	66	12	19·3	3·50
Alexandria - - -	1,077	10	1	9·3	·93
Total - - -	4,504	76	13	16·9	2·88

From the above it is seen that the admission ratio in Alexandria was less than half that in Cairo and the mortality only about a fourth. The figures for Alexandria do not however give a correct idea of the evidence of the disease among the troops at that station, as six of the admissions and one of the deaths shown at Cairo were cases which were contracted in Alexandria by men afterwards stationed at Cairo. By the addition of these cases to those recorded at Alexandria the admission ratio would approximately reach 15·0 and the death rate 1·86 per 1,000, which, however, still compare favourably with the Cairo ratios. Compared with corresponding ratios in the previous year, a decline of admission rate is observed in both stations, particularly in Alexandria; the mortality rate in Cairo has also decreased, but the corrected death rate for Alexandria shows but little change.

The admissions in Cairo came from various barracks. From Abbassiyeh, there were 20 cases and 3 deaths, including 12 cases and 2 deaths from the Main barracks, and 8 cases, 1 fatal, from the Gymnasium barracks. At Kasr-el-Nil there were 10 admissions from nine barrack rooms; one case terminated fatally. In the Citadel Barracks there were 16 cases and 5 deaths, nearly all the cases coming from separate rooms; 10 cases occurred in the hospital, of which 6 were men of the Medical Staff Corps. Of the remaining cases, 6 as already mentioned came from Alexandria, 2 from camp, and 2 were in men recently arrived from Malta. The admissions were scattered over the whole year, every month showing some. The greatest prevalence in any month was in November 11 cases, followed by December 8 cases; this was also the case in the preceding year; January and June gave the lowest number of admissions, 3 each. With regard to age it is found that nearly two-thirds of the cases, 41, were in men between 20 and 25 years of age, 17 among those in the next quinquennium, 5 in men under 20, and 3 in men over 30 years. Taking service in Egypt, it is found that 35 of the cases occurred among men in their first year of service in the country, 12 among men in their second year, and 17 in their third year, followed by one in his fourth year, and one in his fifth year. The above figures show that though a certain number of cases do occur among men who are not very young, the majority is among men under 25 years of age, and with regard to service in the command by far the greatest incidence of the disease occurs among the most recent arrivals. Of the cases at Alexandria, not including those treated in Cairo above alluded to, one occurred at Ras-el-Tin, one in private lodgings, and the remainder at Mustapha. 9 out of the 10 men attacked were in their first year of service in the country, and the tenth had completed one year; one man was under 20 years of age, 6 men were between 20 and 25 years, and 3 between 30 and 35 years. This also shows that young men are more frequently attacked, though there are many exceptions, and that recent arrival in the country is a marked predisposing condition for attack. On the occurrence of each case a searching investigation is made into its probable causation, the sanitary condition of

Egypt and Cyprus.

quarters and surroundings, the condition of food supplies, and the habits and recent movements of the man. Many of the cases are doubtless contracted outside barracks in the bazars and native quarters of the town. As probably most of the cases are due to a contaminated water supply, the adoption of Pasteur filters was strongly recommended for barracks throughout the command, but the demand was not acceded to for Cairo on account of expense, but was for Alexandria, as the water supply at that place is known to be very inferior. It is expected that this will reduce the prevalence of the disease. The return of the cases from Alexandria would have been very small had it not been for an outbreak that took place at Mustapha, at the end of the year; the cause of this could not be absolutely ascertained, but a strong suspicion rested on the milk supply and steps were at once taken to ensure its purity in future as far as possible. It is reported from both Alexandria and Cairo that the disease was not generally of a very severe type.

Typhus Fever, as in each of the two preceding years, caused one admission at Cairo. It is believed that the case was contracted in the bazar; a fatal termination resulted.

Simple Continued Fever caused 302 admissions, being in the ratio of 64·5 per 1,000, which compares very favourably with the corresponding rate in the previous year, the decrease being as much as 36·4. The admission rate is also very little more than one half the similar average rate for the preceding nine years. The greatest prevalence of these fevers was in Cairo, the ratio being 70·6 per 1,000, while in Alexandria it was 48·3 and in Cyprus 45·5 per 1,000. The cases were mostly mild in character and of short duration. Great care was taken to distinguish any that might possibly be mild cases of enteric fever, so that they might be correctly returned as such.

Cholera did not occur among the troops, but it was prevalent in Egypt from the middle of October. The districts chiefly attacked were those of Damietta and Menzaleh, but the greater part of the provinces of Dakahlieh and Chankiyeh were affected. Energetic measures were taken by the Egyptian Sanitary Authorities to check the disease, and prevent its spread, with a considerable amount of success. Two cases occurred in Cairo, in the family of a man lately come from an infected town, but prompt measures were at once taken, and the disease did not spread. At the end of the year, 1,100 cases and 908 deaths had been reported among the civil population.

Dysentery was the cause of 60 admissions and 1 death. The ratio of admissions therefore was 12·8 and the death rate ·21 per 1,000. Compared with last year's return the ratio of prevalence has increased by 2·5, but is still greatly below the average rate of the preceding nine years. 50 of the admissions occurred at Cairo, including the fatal case, and the remainder at Alexandria. The ratios of prevalence in the two places were 14·6 and 9·3 per 1,000 respectively.

Influenza caused 99 admissions, equal to a ratio of 21·2 per 1,000, much more prevalent than in the preceding year. The majority of the cases occurred in Cairo, and it is stated were generally mild and did not give rise to troublesome sequelæ; there were no cases in Alexandria. At Cyprus there were 8 cases, of which is reported that some were very severe.

Malarial Fevers.—222 admissions are returned, including 3 cases of remittent fever, the remainder being ague. The admission ratio was 47·5 per 1,000, an increase of 4·6 on the rate in the previous year, and more than double the average rate for the preceding nine years. Of the cases of ague 195 happened in Cairo, most of them in men of the cavalry regiment who had originally contracted the disease in India. The cases of remittent fever occurred in Alexandria.

Septic Diseases.—These included two cases of erysipelas and one of septicæmia. The former did well, but the latter proved fatal. All occurred in Cairo.

Venereal Diseases.—Primary syphilis was the cause of 137 admissions, equal to 29·3 per 1,000, which is lower than the corresponding rate in the previous year by 13·4 and less than half the average rate for the preceding nine years. The constantly sick rate, 2·40 per 1,000, was lower by 1·60 than in the previous year, and much below the average. Including simple venereal ulcer, which caused 434 admissions, and for which 33·18 men were constantly sick, the admission rate for primary venereal sores was 122·0 per 1,000, and the constantly sick rate 9·49. These ratios compare favourably with those in the

preceding year, that for admissions showing a decline of 76·6; it is also below the average rate for the past nine years by 23·5. *Secondary syphilis* caused 267 admissions or 57·0 per 1,000, and there were 26·09 men constantly sick or 5·57 per 1,000. These ratios are below the corresponding rates in 1894, by 8·0 and 1·67 respectively, but are in excess of the average rates for nine years by 19·7 and 2·16. *Gonorrhœa* gave an admission rate of 98·3 and 6·94 per 1,000 was the constantly sick rate; these also compare favourably with corresponding rates in 1894, the decline in admission being 9·2 and in constantly sick ·73; they were also rather below the similar average ratios for nine years. Taking all forms of venereal disease together, the ratio of admission was 277·3 per 1,000, which shows a decrease of 93·8 from the corresponding rate in the previous year, and one of 12·8 from the nine year's average rate. The constantly sick rate was 22·00 per 1,000, which also compares favourably with the similar rate for 1894, a decrease of 9·86 being observed, but is fractionally above the average. From the above it will be seen that there has been a general improvement as regards these diseases, but taking the different forms, though constitutional disease has declined a little from the previous year's rate, it is still a good deal above the average rate. Examining the returns from stations separately, the admission ratio for all forms of venereal affections in Cairo was 257·9, and the rate of constant inefficiency 21·62 per 1,000, being lower than the corresponding rates in the previous year by 99·1 and 9·84 per 1,000 respectively. In Alexandria the venereal admission rate reached 352·8 per 1,000, which is lower than that of last year by 75·6; the rate of constant inefficiency was 24·86 per 1,000, a decline of 8·62. In Cyprus the admission rate was 193·2, and the constantly sick rate 11·87 per 1,000 as compared with 157·1 and 13·05 respectively in the preceding year. *Egypt and Cyprus.*

Parasitic Diseases were represented by 24 cases of tænia solium, 22 occurring in Cairo, and one in Alexandria and Cyprus respectively.

Alcoholism caused 7 admissions, as compared with 8 in the previous year. Among the cases were 3 of delirium tremens, of which one, at Cairo, proved fatal.

Debility.—58 cases are returned, equal to 12·4 per 1,000, a lower rate than in 1894 by 5·6, and 14·6 below the average rate. The cases were principally the result of climatic and febrile affections.

Rheumatism.—Under this head 115 admissions were returned, being at the rate of 24·6 per 1,000, which is above the previous year's rate by 2·6, but below the nine years average rate by 1·1. Of the cases 15 were rheumatic fever, 11 occurring in Cairo, 3 in Alexandria, and 1 in Cyprus; there was no death.

Tubercular Diseases.—12 admissions and 3 deaths are recorded from tubercular disease of the lungs. The same number of cases and deaths occurred in the previous year. The admission and death rates, 2·6 and ·64 per 1,000 respectively, are similar to the average rates of nine years. Of the cases 10 with 3 deaths occurred at Cairo, and the other two at Alexandria.

Other general diseases caused 53 admissions, including 3 for scrofula, 3 for anæmia, and the remainder for non-malignant new growth.

Local Diseases.—*Diseases of the Nervous System* caused 29 admissions, equal to 6·2 per 1,000 of strength, which is below the corresponding rate in the previous year by 5·6, and the average rate for the preceding nine years by 4·3. There were 6 cases of mental disease, 3 being due to melancholia, and 3 to dementia. Of the admissions for nervous diseases the principal causes were neuralgia 12, and epilepsy 5 cases.

Diseases of the Eye were the cause of 101 admissions, the ratio per 1,000 was therefore 21·6, which is only about half the average rate for nine years, and is below the last year's rate by 2·1. Conjunctivitis was the principal disease, nine-tenths of the admissions being due to it.

Diseases of other Organs of Special Senses caused an admission rate of 12·4 per 1,000, being lower by 6·2 than in the previous year, and 1·9 below the average rate. With the exception of two cases of nasal affection, all the admissions were for aural diseases, principally inflammation of the external meatus.

Diseases of the Circulatory System.—29 admissions are recorded, being in the ratio of 6·2 per 1,000, which is just double the corresponding rate in the previous year, but below the average rate by 4·8. The cases included 10 of

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palpitation, 10 of valvular disease, and 6 of varix. There were four deaths, all at Cairo, one from dilatition of heart, embolus, valvular disease, and aneurysm of the aorta respectively.

Diseases of the Respiratory System.—214 admissions are returned, equal to a ratio of 45·7 per 1,000, an increase of 7·4 on the corresponding rate in the previous year, and one of 8·4 on the average rate for nine years. Bronchial affections were the chief cause of admission, 144 cases being recorded. There were also 45 cases of pneumonia, of which 4 were fatal, and 17 of pleurisy. Of the deaths, 3 occurred at Cairo, and one at Alexandria.

Diseases of the Digestive System caused 524 admissions and 2 deaths. The admission rate, 112·0 per 1,000, is lower than in the previous year by 10·9, and than the nine years' average rate by 32·9. Affections of the mouth and throat, 208 cases, were the most frequent causes of admission, dyspepsia caused 101 admissions, colic 62, diarrhœa 58, and hepatic diseases 43, including 21 of jaundice. There were 4 cases of hepatic abscess, of which 3, which were operated on, recovered. The deaths were 1 from stricture of intestines and hepatic abscess respectively, the former at Alexandria, and the latter at Cairo.

Diseases of the Lymphatic and Glandular System caused an admission rate of 17·3 per 1,000, a decline of 2·0 from the previous year's rate, and 3·7 below the average rate. Two cases of splenitis were included in 81 admissions for these diseases.

Diseases of the Urinary System caused 10 admissions as compared with 6 in the previous year. There was one case of renal abscess, and one of Bright's disease; the latter proved fatal.

Diseases of the Generative System contributed 499 admissions, equal to a rate of 106·6 per 1,000, which is below the corresponding rate in 1894 by 66·0, but slightly in excess of the average rate for the preceding nine years. The admissions for simple venereal ulcer accounted for 434 of the cases, the remainder being chiefly for balanitis, orchitis, and varicocele.

Diseases of the Organs of Locomotion.—The admission rate was 10·0 per 1,000, dependent on 47 cases, of which 33 were due to synovitis. The rate of prevalence is somewhat in excess of that in the preceding year as well as of the average rate.

Diseases of the Connective Tissue gave an admission rate of 22·9 per 1,000, below the average rate by 4·1 and the last year's rate by 1·2.

Diseases of the Skin.—227 admissions are returned, equal to a rate of 48·5 per 1,000, which shows a decrease of 4·9 from the corresponding rate in the previous year, and one of 5·9 from the average rate. Ulcers, boils, itch and eczema were as usual the principal causes of admission.

Poisons.—15 admissions are shown under this head, of which 14 were for poisoned wounds. The remaining case was one of alcoholic poisoning at Cairo, which did well.

Injuries.—445 are returned, equal to a ratio of 95·1 per 1,000, almost identical with the corresponding rate in the previous year, as well as with the average rate for the preceding nine years. Under general injuries, 5 admissions and 4 deaths are shown for multiple injury, 3 of the latter resulting from falls from windows, and 1 from fall from a horse; there was also a death at Cyprus from asphyxia, a man being suffocated when either in a fit or drunk. The 440 cases of local injury were mostly of the usual character, and there was 1 death from fracture of skull, due to a fall from a window.

Invaliding.—The number of men who were invalided home during the year was 46, equal to a ratio of 9·83 per 1,000, which is lower than the corresponding rate in the previous year by 3·78. Compared with the average invaliding rate for the past ten years there is also a great decrease, but it must be remembered that this rate is very high, owing to invaliding during the years of active service. In Cairo invaliding was at the rate of 10·80 per 1,000, a decline of 1·15 from that in the preceding year, the number of men invalided being 37. In Alexandria there were nine men invalided, including one sent from Cyprus for that purpose, the ratio was 8·36 per 1,000, which is lower than the corresponding rate in 1894 by 9·87. Taking arms of the service, the highest invaliding rate was 15·11 per 1,000, in the Royal Artillery; in the preceding year the Artillery also gave the highest rate, which was slightly in excess of that for the year under report. The Staff and Departments came next with 12·70, followed by the Infantry with 9·37, the Engineers with 9·01,

and the Cavalry with 7·87, and, with the exception of that of the Infantry, all are higher than the corresponding ratios in the preceding year. Of individual corps a very high rate, 82·71 per 1,000, is shown for the 2nd Battalion South Lancashire Regiment, 12 men being invalided out of a small average annual strength, the corps having proceeded to India. The 32nd Field Battery, Royal Artillery, gave a high rate, 22·22, and the 1st Battalion South Wales Borderers, one of 13·16. In the 1st Battalion North Staffordshire Regiment, there was no invaliding, and there was a low rate, 1·18, in the 2nd Battalion Connaught Rangers, and one of 5·32 in the 1st Battalion Gloucestershire Regiment. With regard to the ages at which men were invalided, it will be seen from a table on a previous page, that the rate among men under 20 years of age was low, 5·21 per 1,000, among men between 20 and 25 years of age it was almost double, but, during the succeeding quinquennium of age, there was a slight decline, after which again an increase occurred. In the previous year the rate for men under 20 years of age was higher than in the year under report; the ratios increased during the succeeding two quinquennia, but afterwards dropped again. Compared with corresponding rates for 1894, those for men between 30 and 40 years of age have increased, but those for the remainder have declined. Taking service in the Command, the invaliding rate among men in their first year was 5·15 per 1,000, but increased to 10·25 among men in their second year, and still further among men in their third, fourth and fifth years of service, after which there was no invaliding. In the previous year there was also a low rate of invaliding among men in their first year of service, but the highest rate was among men in their second year of service in the Command. *Egypt and Cyprus.*

The principal causes of invaliding were mental diseases, 9 cases (melancholia 4, dementia 4, and mania 1), equal to 1·92 per 1,000; followed by tubercular disease of the lungs 6 cases, or 1·28 per 1,000, debility 5 cases, or 1·07 per 1,000, enteric fever and respiratory diseases 4 each, or ·86 per 1,000, and diseases of the circulatory system 3, or ·64 per 1,000.

There were 45 men discharged the service as medically unfit for further service, the ratio, 9·61 per 1,000, being below that for the previous year; and the decennial average rate by ·55 and 11·17 respectively. The chief causes of discharge were, nervous diseases 12 cases, or 2·56 per 1,000, inclusive of 11 cases, or 2·35 per 1,000, of mental affection; tubercular diseases 6 cases, or 1·28 per 1,000; diseases of the circulatory system 5 cases, or 1·07, and diseases of the respiratory organs 4 cases, or ·86 per 1,000.

Officers.—The annual strength of officers was 154, and there were 98 attacks of illness, equal to a ratio of 636·4 per 1,000, which is below the corresponding rate for Egypt and Cyprus in the previous year by 95·8. Among the cases treated were 19 of simple continued fever, and 2 of enteric fever, one of which proved fatal; 4 cases of dysentery are returned, also 5 of ague, 6 of respiratory disease, 15 of diseases of the digestive system, and 21 of injury, including five cases of fracture and one case of accidental gunshot wound of foot by pistol bullet. Nine officers were invalided, equal to 58·57 per 1,000. The causes of invaliding were enteric fever, 2 cases, constitutional syphilis 2, and simple continued fever, tubercle of the lung, aortic aneurysm, enteritis, and gunshot wound, one case respectively.

Women.—The average annual strength of women was 218, and there were 266 attacks of illness (exclusive of 48 cases of parturition), being in the ratio of 1,220·2 per 1,000, which compares favourably with the similar rate in 1894, and shows a decline of 114·4. There were 4 deaths, giving a mortality rate of 18·35 per 1,000; this, however, is in excess of the corresponding rate in the previous year by 2·60. The attacks of sickness included 1 of scarlet fever, 16 of influenza, 32 of simple continued fever, 4 of enteric fever, 6 of dysentery, 37 of debility, 47 of ophthalmic affections, 20 of respiratory affections, 43 of diseases of the digestive system, and 28 of diseases of the generative system. The deaths were two from enteric fever, (one at Cairo, and the other at Alexandria), one from tubercle of lung, and one from congestion of liver, both at Cairo.

Children.—The average strength of children was 415, the number of attacks of illness was 737, and there were 19 deaths. The ratio of prevalence of sickness therefore amounted to 1,775·9 per 1,000, which, though very high, compares favourably with that in the preceding year, which was in excess of

Egypt and Cyprus.

the present rate by 11·1. The death rate, 45·76 per 1,000, shows an increase of 6·13 on the last year's rate. The principal causes of sickness were as follows:—Eruptive fevers, 51 cases, all of which occurred in Cairo, including 14 of scarlet fever, 5 of measles, and 34 of chicken-pox; influenza 18 cases, continued fevers 26 cases, including 1 of enteric fever, three in Cairo, and three in Alexandria, fevility 31 cases, paludal affections, nearly all conjunctivitis, 260 cases; respiratory affections, 83; diseases of the digestive system, 103; and injuries, 21 cases. The deaths were 4 from convulsions, 3 from bronchitis, 2 each from tubercle of lung and diarrhœa, and 1 from simple continued fever, hydrocephalus, laryngitis, pneumonia, and teething respectively. There were also 3 deaths from injury, all at Cairo, one from multiple injury, the result of a fall, and two from asphyxia, one of which was caused by accidental strangulation and the other by overlying.

Sanitary Conditions. — The Principal Medical Officer, Surgeon-Colonel W. Nash, M.D., states that the sanitary condition of barracks, quarters, and hospitals in the command received very careful attention during the year, with a view to maintain the generally satisfactory state that existed and to recommend and carry out as far as possible any improvements which circumstances rendered advisable, as well as to remedy or minimise any defects which were brought to light. The recommendations made by medical officers always received attention, and were carried out as far as possible. The barracks were generally satisfactory and afforded sufficient accommodation. Some improvement was effected in the condition of the vicinity on the east side of Kasr-el-Nil barracks, which was not entirely satisfactory, and several improvements were made at the Citadel barracks, notably the provision of foul air extractors to some of the barrack rooms and married quarters, improvement in the latter being also effected by altering and lowering the windows, giving more light and ventilation.

The water supply at Cairo is from the Cairo waterworks, afterwards filtered through zeers, and was ample in quantity; the quality was generally fair, though at times doubtful, owing, in some measure, to the condition of the river. For such a water efficient filtration is most desirable, and it is regretted that on account of expense, Pasteur-Chamberland filters were not provided, but it is hoped that the hospitals, at least, will be furnished with them before long. During the prevalence of cholera it was recommended that all drinking water be boiled, in addition to filtration. At Alexandria the water, taken from the Mahmoudieh canal, is indifferent in quality, and Pasteur-Chamberland filters were therefore provided at Mustapha with such excellent results that recommendations for their provision at all barracks were being considered and carried out.

The arrangements for ablution were good and sufficient, swimming baths at the Citadel and Abbassiyeh, and one in the river at Kasr-el-Nil, Cairo, and the sea at Alexandria, being much resorted to.

The latrines throughout the Command were kept in good order; they are on the dry earth system, and some difficulty was experienced in procuring suitable earth, and in keeping it dry during the damp months. The drainage generally was in good order and well attended to, that at the Citadel, Cairo, having been extensively relaid, as was also that at Kasr-el-Nil. At Mustapha, Alexandria, some defective drainage of sinks in married quarters was remedied, as well as an insanitary condition of some catch-pits, suggestions being made as to better methods of emptying the latter.

The rations were satisfactory, the meat being usually of good quality; preserved meat was issued once a week. The bread was also good, and fresh vegetables were plentiful at all stations. The clothing was suitable to the climate and varied according to season, and the duties, of the usual character, were not detrimental to health. The gymnasia at the different barracks afforded exercise conducive to health.

The sanitary recommendations made during the year were very numerous, and were generally carried out at once. The presence of cholera in the country caused the strictest supervision to be maintained, and a set of instructions for guidance as to general sanitary and hygienic measures was issued.

Among the general improvements may be mentioned the completion of arrangements with the civil sanitary department for disinfection by steam at

their disinfecting stations; the system works as well as can be expected, considering that the articles have to be sent to a considerable distance for this purpose. *Egypt and Cyprus.*

At Cyprus the sanitary conditions under which the troops lived were very satisfactory, the water supply, conservancy, &c., being favourably reported upon. The only point upon which improvement is suggested is the ablutionary accommodation, and recommendations were put forward on the subject.

Troops on Board Ship.

XV.—ON THE HEALTH OF THE TROOPS ON BOARD SHIP.

The troops embarked during the year, as shown by the returns received at head-quarters, were:—

I. Troops proceeding on service abroad - - -	19,670
II. Troops returning from abroad - - - -	16,246
III. Troops proceeding from one station abroad to another	17,585
IV. Invalids returning to England - - -	2,061

I.—Troops proceeding on Foreign Service.

The total number of warrant officers, non-commissioned officers, and men embarked for foreign service during the year was 19,670, the equivalent annual strength being 1,010. There were 1,048 admissions into hospital, and one death, being in the annual ratios of 1,037·6 and ·99 per 1,000 respectively. Compared with corresponding ratios in the preceding year, increase is observed in the admission and death rates of 61·7 and ·26 respectively, but in comparison with similar average ratios for the previous ten years there is a decrease of 76·1 in the former, and one of 2·86 in the latter.

The admissions and deaths according to the different groups and orders of diseases are shown in Abstract XXII.

General Diseases.—*Diseases dependent on Morbid Poisons.*—There were 2 admissions for *eruptive fevers*, one being a case of measles and occurring on R.M.S. "Para," the other was a case of cow-pox. *Enteric fever* caused one admission on the transport "Dilwara"; the disease would appear to have been contracted prior to embarkation. *Other continued fevers* caused 15 admissions, giving a ratio of 14·8 per 1,000, being an increase of 1·4 on the previous year; there were also 18 cases of *influenza*, showing an increase on the previous year's ratio of 11·2 per 1,000.

Venereal Diseases, although still the chief causes of sickness, compare favourably with previous years. *Primary syphilis* was the origin of 93 admissions, equal to a rate of 92·1 per 1,000, as compared with 150·6 in 1894. Including 58 cases of simple venereal ulcer the ratio was 149·5, or 58·8 per 1,000 less than the previous year's ratio. *Secondary syphilis* caused 29 admissions, or a ratio of 28·7 per 1,000, fractionally below the preceding year's rate. *Gonorrhœa* contributed 235 cases, equal to a ratio of 232·7 per 1,000, and below the ratio of 1894 by 56·8. Including all forms of venereal disease, the ratio of admission was 410·9 per 1,000, which is less by 116·1 than the previous year's rate.

Scurvy caused one admission on board the transport "Britannia" in February. There were 6 admissions for *debility*. *Rheumatism* caused 25 admissions, equal to a ratio of 24·7 per 1,000, an increase of 8·6 on the rate for 1894. There were also 16 admissions shown under non-malignant new growth.

Local Diseases.—*Diseases of the nervous system* caused 5 admissions, including 3 of neuralgia and 2 of epilepsy. *Diseases of the eye* gave 17 admissions, all except one being for conjunctivitis, and *aural affections* contributed 4 cases. For *diseases of the circulatory system* only one case is recorded, while *diseases of the respiratory system* show 102 admissions, giving a ratio of 101·0 per 1,000, an increase of 56·4 on the previous year's rate. The cases comprised 94 of bronchitic affection, 5 of pneumonia, 2 of laryngitis, and 1 of hæmorrhage of lung. *Diseases of the digestive system* were the cause of 125 admissions, equal to a ratio of 123·8 per 1,000, which is 57·3 in excess of that of the previous year. The chief causes of sickness were mouth and throat affections, 83 cases, and diarrhœa 19; other ailments being represented by small figures.

The admission rate for *diseases of the lymphatic and glandular system* was 22·8, showing an excess of 8·2 per 1,000, as compared with the rate for 1894.

Troops on Board Ship.

Diseases of the generative system gave an annual ratio of 99·0 per 1,000, which is 3·2 above the rate for the preceding year; more than half of the cases were simple venereal ulcer. *Diseases of the organs of locomotion* furnished only 5 admissions, or a ratio of 4·9 per 1,000, and there were 35 admissions under *diseases of the connective tissue*, the ratio being 34·7 per 1,000, or 2·6 in excess of the previous year's rate. *Diseases of the skin*, with 102 admissions, gave a ratio of 101·0, or 2·3 per 1,000 above the rate for 1894. Ulcers, itch, and boils furnished the majority of the cases. Three admissions, all for heat apoplexy, are shown under general injuries, which ultimately recovered, and one death from asphyxia from submersion is recorded, a man of the West Yorkshire Regiment proceeding to Gibraltar on board the transport "Victoria" falling overboard off Cape St. Vincent. The cases of *local injury* numbered 83, equal to a ratio of 82·2 per 1,000, being in excess of the previous year's rate by 6·9. Wounds, contusions, and burns were the chief causes of admission.

The number of officers embarked was 977, and among these 8 cases of sickness are shown. The number of women embarked was 971, no death being recorded; but among children, of whom 1,279 embarked, one death occurred from diphtheria.

II.—Troops returning Home from Abroad.

The number of effective warrant officers, non-commissioned officers, and men who embarked for England was 16,246, the equivalent annual strength being 925. The admissions into hospital numbered 865, and there were 5 deaths, being in the annual ratios of 935·1 and 5·40 per 1,000, as compared with 1154·6 and 17·44 respectively in the previous year. Compared with similar average ratios for the previous ten years, there is a decline of 185·1 in the admission ratio and one of 6·10 in the mortality rate.

The admissions and deaths in the different groups and orders of diseases are shown in Abstract XXII.

General Diseases.—*Diseases dependent on Morbid Poisons.—Eruptive fevers* and *enteric fever* were unrepresented. *Simple continued fever* gave an admission rate of 8·7 per 1,000, a decline from the corresponding rate in the previous year of 7·6. The admissions for *dysentery* numbered 13, giving a ratio of 14·0 per 1,000, which shows an increase of 1·2.

Malarial fevers.—Under this heading 118 admissions are recorded, being in the annual ratio of 127·6 per 1,000, an increase of 41·6 on the similar ratio for last year. Four of the cases were shown as remittent fever, all the remainder being cases of ague. *Septic diseases* were represented by 2 cases of erysipelas.

Venereal diseases.—The admissions for *primary syphilis* were 138 in number, the annual ratio being 149·2 per 1,000, which is 76·4 less than the corresponding rate in the preceding year. Including 53 cases of simple venereal ulcer, the admission rate for primary venereal sores was 206·5, which is below the rate in the previous year by 119·1. *Secondary syphilis* caused 50 admissions, or 54·1 per 1,000, as compared with 48·8 in the previous year. The admissions for *gonorrhœa* numbered 183, giving a ratio of 197·8 per 1,000, or a decrease of 5·7 from the ratio for 1894. Including all forms of venereal disease, the total admission ratio was 458·4, being a decrease of 119·5 per 1,000 from the corresponding ratio for the previous year.

Debility, with 10 cases, gave a ratio of 10·8 per 1,000, and *rheumatism*, *tubercular disease*, and non-malignant new growth gave 27, 1, and 2 admissions respectively. The ratio for rheumatism was 29·2 per 1,000, an increase of 12·9 on the preceding year; two of the admissions were for rheumatic fever. One death occurred from malignant new growth (cancer of tongue).

Local Diseases.—*Diseases of the nervous system* caused only 2 admissions, one for neuralgia, and one for melancholia. *Diseases of the eye* and *aural affections*, were the cause of 4 and 3 admissions respectively. No admissions appear under *diseases of the circulatory system*, but under *respiratory* and *digestive disorders* are 68 and 47 cases respectively; showing a decrease in admission rate in the former of 107·9 [illegible] in the latter class of diseases of 2·0 per 1,000. Bron[illegible] contributed nearly all of the admissions for diseases of th[illegible] There were two deaths

ops on rd Ship.

from pneumonia and 1 from acute laryngitis. Among those of the digestive system hepatic diseases and affections of the mouth and throat were the chief cause of admission, and a death occurred from typhlitis. *Diseases of the lymphatic and glandular system* were the origin of 24 admissions, showing a decrease as compared with the previous year's ratio of 9·0 per 1,000, and *diseases of the generative system*, with 63 admissions, gave a ratio of 68·1, as compared with 110·5 in the preceding year. *Diseases of the connective tissue*, with an admission rate of 25·9 per 1,000, show a decline of 2·0, as compared with the ratio for 1894; but *skin diseases* show an increase of 2·3 per 1,000 when compared with the similar ratio for that year.

Injuries show a decreased ratio, to the extent of 9·5, when compared with the previous year's rate. Of the 31 admissions under this heading, one was a case of *general injury*, and entered under heat apoplexy; amongst *local injuries*, the chief causes of admission were 16 of wounds, 4 each for contusions and burns and scalds, and 3 for dislocation.

Among 667 officers embarked there were 16 cases of sickness, one, a case of empyema, proving fatal. The number of women embarked was 975, and one death occurred from tubercle of lung. 1,923 children embarked, and there were 6 deaths, 2 being from infantile convulsions, 2 from diarrhœa, 1 from measles, and 1 from debility.

III.—Troops proceeding from one Station Abroad to another.

The number of warrant officers, non-commissioned officers, and men who embarked for transit between one station abroad and another was 17,685, the equivalent annual strength being 496. The admissions into hospital numbered 563, and 4 deaths occurred, the ratios being 1135·1 and 8·06 respectively, the former showing a decrease of 23·6 and the latter one of ·29 when compared with similar ratios in the previous year; in comparison with previous ten years' average rate, that for admissions is less by 105·5, but an increase of 1·51 is observed in the mortality rate.

The admissions in the different groups and orders of diseases are shown in Abstract No. XXII.

General Diseases.—*Diseases dependent on Morbid Poisons.*—Under the heading of *other continued fevers* 24 admissions are recorded, the increase on the ratio of the previous year being 34·5 per 1,000. There were 7 admissions due to dysentery, giving a ratio of 14·1 compared with 16·7 in the foregoing year.

Malarial fevers caused 44 admissions, two being cases of remittent fever, and the remainder ague. The ratio, 88·7, was higher than that of the foregoing year by 16·3 per 1,000.

Venereal Diseases.—The number of admissions for *primary syphilis* was 113, giving a ratio of 227·8 per 1,000, which is above that of the previous year by 96·9. Including simple venereal ulcer, for which there were 53 admissions, the ratio for primary venereal sores was 334·6, or 47·7 in excess of the preceding year's rate. *Secondary syphilis* caused 15 admissions, equal to a ratio of 30·3 as compared with 19·5 in the previous year. *Gonorrhœa*, with 164 admissions, shows a ratio of 330·6 per 1,000, which in comparison with the similar rate in the foregoing year is less by 101·2. Including all forms of venereal disease, the total annual admission rate, 695·5 per 1,000, is less by 42·7 than the corresponding rate in 1894.

The other admissions for general diseases comprise 2 for alcoholism, 6 for debility, 6 for rheumatism, 1 for tubercular disease, and 4 for non-malignant new growth.

Local Diseases.—Under *nervous affections*, no admissions are recorded, but there were 7 cases of *diseases of the eye* all but one being due to conjunctivitis, and *aural diseases* were represented by 5 cases of inflammation of the external meatus. A single admission is shown under *circulatory diseases*, from fatty degeneration of heart, which proved fatal; and *respiratory affections* with 8 admissions included four for bronchitis, two for pneumonia, and one each for laryngitis and hæmoptysis. *Digestive disorders* contributed 22 cases of sickness, or a ratio of 41·4 per 1,000, which is a decline of 5·7 from the similar ratio for the preceding year. The chief causes of admission were

throat and mouth affections and diarrhœa; there was one death from peritonitis. *Troops on Board Ship.*
Diseases of the lymphatic and glandular system caused 4 admissions, the ratio per 1,000 being less than half that of the previous year. There is one admission, a case of renal calculus, shown under *urinary disorders*. Among *Diseases of the generative system* there were 61 admissions, 53 being for simple venereal ulcer, 5 for orchitis, and 3 for balanitis, the ratio per 1,000 being 123·0, showing a decline of 60·8 from the previous year's ratio. No admission is shown under *diseases of the organ of locomotion*, but *diseases of the connective tissue* and *skin affections* contributed 12 and 15 cases respectively, the former being fractionally below and the latter less by 11·5 than the corresponding rates in 1894.

Injuries.—Two cases of asphyxia from submersion are recorded. One man was drowned in the harbour of Colombo in March, and the other was washed overboard from S.S. "Victoria," proceeding from Gibraltar to Bombay in December. 39 cases of local injuries are recorded, equal to a ratio of 78·6, which is an increase on last year's rate of 9·0. The chief causes of admission were wounds, sprains, and contusions.

In 402 officers embarked there were 3 cases of sickness. The numbers of women and children embarked were 539 and 927 respectively; there was no death among the former, but one occurred among the latter from infantile convulsions.

IV.—Invalids returning to England.

The number of invalids embarked for England from foreign stations was 2,061, equal to an annual strength of 135. There were 17 deaths during the voyage home. The sickness and mortality among these invalids are accounted for in the statistical tables of the Commands from which they were invalided.

V.—Sanitary Condition of Ships.

The sanitary condition of the different vessels, and the accommodation provided for the troops on the various voyages, were generally reported to be satisfactory.

ABSTRACT No. I.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS among the TROOPS serving in the UNITED KINGDOM during the

Diseases. (Average Strength in Annual Returns, 99,795. † Average Strength, including Men detached, 103,706.)	Admissions into Hospital.	Died: With the Regiment.	Died: Absent from the Regiment.	Died: Total.	Invalids Discharged the Service.
I.—GENERAL DISEASES.					
GROUP "A."					
Sub-Group I. Small-pox	3	—	—	—	—
Other Eruptive Fevers	1,113	8	—	8	—
Enteric Fever	137	33	2	35	—
Other Continued Fevers	281	1	—	1	—
Yellow Fever	—	—	—	—	—
Cholera	—	—	—	—	—
Dysentery	35	—	—	—	4
Other Diseases	† 3,368	17	2	19	—
Total	4,937	59	4	63	4
Sub-Group II.—Malarial Fevers	596	1	—	1	4
Sub-Group III.—Septic Diseases	124	6	—	6	1
Sub-Group IV. Syphilis, Primary	4,292	—	—	—	1
„ Secondary	3,478	6	—	6	108
Gonorrhœa	7,546	—	—	—	2
Total	15,316	6	—	6	111
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—
GROUP "B."					
Sub-Group I.—Parasitic Diseases	27	—	—	—	—
Sub-Group II. Scurvy	4	—	—	—	—
Alcoholism	137	3	—	3	5
GROUP "C."					
Debility, &c.	667	1	—	1	86
GROUP "D."					
Rheumatism	2,837	5	—	5	56
Tubercular Diseases	305	58	12	70	163
Other Diseases	455	8	—	8	33
II.—LOCAL DISEASES.					
Diseases of the—					
1. Nervous System: Nervous Diseases	675	36	1	37	110
1. Nervous System: Mental „	135	4	—	4	79
2. Eye	1,068	—	—	—	73
3 & 4. Other Organs of Special Senses	772	—	—	—	114
5. Circulatory System	994	27	—	27	376
6. Respiratory „	5,909	91	10	101	64
7. Digestive „	10,305	24	1	25	129
8. Lymphatic and Glandular System	1,376	1	—	1	18
9. Urinary System	197	13	4	17	31
10. Generative „	3,217	1	—	1	35
11. Organs of Locomotion	931	2	—	2	128
12. Connective Tissue	2,497	1	—	1	6
13. Skin	6,936	—	—	—	19
III.—POISONS	8	3	1	4	—
IV.—INJURIES.					
1. General	68	30	—	30	1
2. Local	9,314	34	—	34	74
3. In Action	—	—	—	—	—
No appreciable disease	325	—	—	—	—
Cause unknown (refers to deaths only)	—	1	—	1	—
General Total	70,132	415	33	448	1,719

† Ratios of deaths and invalids calculated on this strength.

into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK Year 1895, with the Ratios per 1,000 of the Strength.

Average Number constantly Sick.	Ratio per 1,000.				*Average Ratio per 1,000 from 1886 to 1894.			
	Admissions.	Deaths.	Invalids Discharged the Service.	Constantly Sick.	Admissions.	Deaths.	Invalids Discharged the Service.	Constantly Sick.
·64	—	—	—	·01	·1	—	—	·01
103·12	11·2	·08	—	1·03	8·0	·05	—	·56
23·97	1·4	·34	—	·24	1·3	·27	—	·21
11·10	2·8	·01	—	·11	4·2	·01	—	·18
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
2·91	·4	—	·04	·03	·7	·02	·04	·07
123·11	33·7	·18	—	1·23	15·4	·04	—	·42
264·85	49·5	·61	·04	2·65	30·4	·39	·04	1·45
23·39	6·0	·01	·04	·23	6·0	·01	·01	·21
8·35	1·2	·06	·01	·08	2·1	·08	·01	·14
417·54	43·0	—	·01	4·18	65·9	—	·01	6·13
390·28	34·9	·06	1·04	3·91	36·1	·05	·76	3·42
539·97	75·6	—	·02	5·41	92·3	—	·05	6·15
1347·79	153·5	·06	1·07	13·50	194·3	·05	·82	15·70
—	—	—	—	—	—	—	—	—
·90	·3	—	—	·01	·5	—	—	·01
·42	—	—	—	—	·1	—	—	—
4·56	1·4	·03	.05	·05	2·5	·04	—	·08
47·44	6·7	·01	·83	·48	7·3	·01	·93	·51
191·66	28·4	·05	·54	1·92	36·5	·05	·66	2·28
45·72	3·0	·67	1·56	·46	3·5	·93	1·71	·56
35·72	4·6	·08	·32	·36	5·1	·12	·39	·40
43·48	6·8	·35	1·06	·44	7·4	·33	1·16	·50
21·29	1·3	·04	·76	·21	1·4	·01	·94	·24
67·28	10·7	—	·70	·67	11·8	—	·69	·71
58·41	7·7	—	1·10	·59	7·6	·01	·74	·46
99·45	10·0	·26	3·63	1·00	9·6	·40	3·28	·92
281·43	59.2	·97	·62	2·82	64·6	1·31	·91	3·24
358·54	103·3	·24	1·24	3·39	106·6	·35	·92	3·19
160·61	13·8	·01	·17	1·61	16·9	·01	·10	1·77
19·89	2·0	·16	·30	·20	2·3	·16	·26	·20
241·09	32·2	·01	·34	2·42	37·4	·01	·29	2·36
70·43	9·3	·02	1·23	·71	7·6	·03	·92	·61
103·75	25·0	·01	·06	1·04	23·1	·01	·09	1·05
280·94	69·5	—	·18	2·82	74·7	—	·20	2·77
·39	·1	·04	—	—	·1	·04	—	·01
2·96	·7	·29	·01	·03	·2	·37	·01	·01
395·34	93·3	·33	·71	3·96	98·1	·33	·75	4·04
—	—	—	—	—	—	—	—	—
11·26	3·3	—	—	·11	3·1	—	—	·09
—	—	·01	—	—	—	—	—	—
4167·25	702·8	4·32	16·57	41·76	760·8	5·05	15·83	43·51

* The average ratios for 10 years will be given in future years.

ABSTRACT A.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS among the TROOPS stationed in ENGLAND during the

Average Strength in Annual Returns, 72,470. † Average Strength, including Men detached, 74,892. Diseases.	Admissions into Hospital.	Died: With the Regiment.	Died: Absent from Regiment.	Died: Total.	Invalids discharged the Service.	Average Number constantly Sick.
I.—GENERAL DISEASES.						
GROUP "A."						
Sub-Group I. Small-pox	2	—	—	—	—	·29
Other Eruptive Fevers	926	5	—	5	—	89·34
Enteric Fever	73	21	1	22	—	13·45
Other Continued Fevers	189	—	—	—	—	7·08
Yellow Fever	—	—	—	—	—	—
Cholera	—	—	—	—	—	—
Dysentery	31	—	—	—	3	2·71
Other Diseases	2,637	7	1	8	—	100·28
Total	3,858	33	2	35	3	213·15
Sub-Group II.—Malarial Fevers	474	1	—	1	3	18·31
Sub-Group III.—Septic Diseases	101	4	—	4	1	6·47
Sub-Group IV. Syphilis, Primary	3,257	—	—	—	1	317·85
" Secondary	2,784	4	—	4	94	321·17
Gonorrhœa	5,869	—	—	—	1	419·50
Total	11,910	4	—	4	96	1058·52
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—
GROUP "B."						
Sub-Group I.—Parasitic Diseases	16	—	—	—	—	·61
Sub-Group II. Scurvy	1	—	—	—	—	·10
Alcoholism	84	—	—	—	—	2·80
GROUP "C."						
Debility, &c.	496	1	—	1	71	36·61
GROUP "D."						
Rheumatism	2,156	4	—	4	40	149·87
Tubercular Diseases	225	38	9	47	116	32·45
Other Diseases	327	5	—	5	27	26·26
II.—LOCAL DISEASES.						
Diseases of the—						
1. Nervous System (Nervous Diseases)	495	26	1	27	82	32·82
1. Nervous System (Mental ")	93	4	—	4	43	10·74
2. Eye	745	—	—	—	55	46·63
3 & 4. Other Organs of Special Senses	578	—	—	—	91	44·59
5. Circulatory System	665	17	—	17	258	66·83
6. Respiratory "	4,239	63	5	68	54	200·36
7. Digestive "	7,578	21	—	21	106	252·40
8. Lymphatic and Glandular System	1,093	—	—	—	15	127·05
9. Urinary System	125	7	3	10	23	15·44
10. Generative "	2,483	1	—	1	78	195·40
11. Organs of Locomotion	609	—	—	—	92	49·95
12. Connective Tissue	1,866	1	—	1	4	77·51
13. Skin	5,034	—	—	—	14	208·05
III.—POISONS	7	2	1	3	—	·34
IV.—INJURIES.						
1. General	66	29	—	29	1	2·81
2. Local	6,306	23	—	23	59	282·35
3. In Action	—	—	—	—	—	—
No appreciable disease	267	—	—	—	—	9·28
Cause unknown (refers to deaths only)	—	—	—	—	—	—
General Total	52,100	325	21	296	1,282	3165·71

† Ratios of deaths and invalids calculated on this strength.

into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK Year 1895, with the Ratios per 1,000 of the Strength.

Ratio per 1,000.				* Average Ratio per 1,000 from 1886 to 1894.			
Admissions.	Deaths.	Invalids Discharged the Service.	Constantly Sick.	Admissions.	Deaths.	Invalids Discharged the Service.	Constantly Sick.
—	—	—	—	·1	—	—	·01
12·8	·07	—	1·23	9·5	·05	—	·67
1·0	·29	—	·19	1·0	·20	—	·16
2·6	—	—	·10	4·1	·02	—	·16
—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
·4	—	·04	·04	·8	·03	·04	·09
36·4	·11	—	1·38	17·0	·04	—	·47
53·2	·47	·04	2·94	32·5	·34	·04	1·56
6·5	·01	·04	·25	7·2	·01	·02	·26
1·4	·05	·01	·09	2·2	·09	·01	·15
44·9	—	·01	4·39	71·6	—	·01	6·71
38·4	·05	1·26	4·43	39·0	·05	·81	3·76
81·0	—	·01	5·79	95·1	—	·05	6·40
184·3	·05	1·28	14·61	205·7	·06	·87	16·87
—	—	—	—	—	—	—	—
·2	—	—	·01	·5	·01	—	·01
—	—	—	—	·1	—	—	—
1·2	—	—	·04	2·6	·04	—	·09
6·8	·01	·95	·51	7·	·01	·92	·51
29·8	·05	·53	2·07	38·6	·06	·69	2·42
3·1	·63	1·55	·45	3·5	·95	1·79	·57
4·5	·07	·36	·36	5·3	·12	·43	·43
6·8	·86	1·10	·45	7·7	·35	1·21	·53
1·3	·05	·57	·14	1·2	·01	·86	·22
10·3	—	·73	·64	11·8	—	·71	·71
8·0	—	1·22	·62	8·1	·01	·78	·50
9·2	·23	3·45	·92	10·0	·42	3·57	·98
58·5	·91	·72	2·76	66·5	1·38	·91	3·32
104·6	·28	1·42	3·48	112·0	·37	·95	3·37
15·1	—	·20	1·75	17·8	·01	·10	1·89
1·7	·13	·31	·19	2·3	·16	·25	·20
34·3	·01	·37	2·70	38·3	·01	·30	2·50
8·4	—	1·23	·69	7·4	·03	·99	·61
25·7	·01	·05	1·07	23·0	·02	·09	1·07
69·5	—	·19	2·87	76·0	—	·20	2·79
·1	·04	—	—	·2	·05	—	·01
·9	·27	·01	·04	·2	·34	—	·01
89·8	·31	·79	3·90	97·2	·32	·79	4·06
—	—	—	—	—	—	—	—
3·7	—	—	·13	3·3	—	—	·10
—	—	—	—	—	—	—	—
718·9	3·96	17·12	43·68	788·7	5·16	16·50	45·74

* The average ratios for 10 years will be given in future years.

ABSTRACT B.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS among the TROOPS stationed in SCOTLAND during the

Average Strength, in Annual Returns, 3,473. † Average Strength, including Men detached, 3,590. Diseases.	Admissions into Hospital.	Died			Invalids discharged the Service.	Average Number constantly Sick.
		With the Regiment.	Absent from Regiment.	Total.		
I.—GENERAL DISEASES.						
GROUP "A."						
Sub-Group I. Small-pox	—	—	—	—	—	—
Other Eruptive Fevers	19	—	—	—	—	·69
Enteric Fever	3	—	—	—	—	·43
Other Continued Fevers	10	—	—	—	—	·21
Yellow Fever	—	—	—	—	—	—
Cholera	—	—	—	—	—	—
Dysentery	2	—	—	—	1	·14
Other Diseases	18	—	—	—	—	·49
Total	52	—	—	—	1	1·96
Sub-Group II.—Malarial Fevers	10	—	—	—	1	·31
Sub-Group III.—Septic Diseases	4	—	—	—	—	·63
Sub-Group IV. Syphilis, Primary	100	—	—	—	—	8·44
„ Secondary	63	—	—	—	—	4·83
Gonorrhœa	218	—	—	—	—	14·02
Total	381	—	—	—	—	27·29
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—
GROUP "B."						
Sub-Group I.—Parasitic Diseases	2	—	—	—	—	·04
Sub-Group II. Scurvy	—	—	—	—	—	—
Alcoholism	4	1	—	1	—	·07
GROUP "C."						
Debility, &c.	27	—	—	—	2	·98
GROUP "D."						
Rheumatism	86	—	—	—	3	4·52
Tubercular Diseases	8	—	—	—	4	·66
Other Diseases	18	—	—	—	1	1·10
II.—LOCAL DISEASES.						
Diseases of the— 1. Nervous System Nervous Diseases	26	1	—	1	6	1·11
Mental „	5	—	—	—	2	·68
2. Eye	36	—	—	—	2	1·44
3 & 4. Other Organs of Special Senses	20	—	—	—	2	·66
5. Circulatory System	19	3	—	3	6	1·19
6. Respiratory „	199	2	—	2	3	8·06
7. Digestive „	316	—	—	—	4	8·90
8. Lymphatic and Glandular System	21	—	—	—	1	1·60
9. Urinary System	9	—	—	—	2	·60
10. Generative „	116	—	—	—	3	6·17
11. Organs of Locomotion	38	1	—	1	5	2·39
12. Connective Tissue	95	—	—	—	—	4·01
13. Skin	245	—	—	—	—	6·79
III.—POISONS	—	—	—	—	—	—
IV.—INJURIES.						
1. General	—	2	—	2	—	—
2. Local	314	—	—	—	2	10·90
3. In Action	—	—	—	—	—	—
No appreciable disease	2	—	—	—	—	·02
Cause unknown (refers to deaths only)	—	1	—	1	—	—
General Total	2,053	11	—	11	51	92·07

† Ratios of deaths and invalids calculated on this strength.

into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK Year 1895, with the Ratios per 1,000 of the Strength.

Ratio per 1,000.				*Average Ratio per 1,000 from 1886 to 1894.			
Admissions.	Deaths.	Invalids Discharged the Service.	Constantly Sick.	Admissions.	Deaths.	Invalids Discharged the Service.	Constantly Sick.
—	—	—	—	·1	—	—	·01
5·5	—	—	·20	4·8	—	—	·31
·9	—	—	·12	·7	·12	—	·11
2·9	—	—	·06	6·8	—	—	·17
—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
·6	—	·28	·04	·3	—	·03	·02
5·2	—	—	·14	9·2	·09	—	·22
15·0	—	·28	·56	21·9	·21	·03	·84
2·9	—	·28	·09	2·9	—	—	·07
1·1	—	—	·18	2·8	·12	—	·13
28·8	—	—	2·43	32·0	—	—	2·60
18·1	—	—	1·39	30·5	·03	1·12	2·18
62·8	—	—	4·04	74·5	—	·09	3·82
109·7	—	—	7·86	137·1	·03	1·21	8·60
—	—	—	—	—	—	—	—
·6	—	—	·01	·6	—	—	·01
—	—	—	—	·2	—	·03	·01
1·1	·28	—	·02	3·1	—	—	·07
7·8	—	·56	·28	5·0	—	1·18	·33
24·8	—	·83	1·30	26·7	·06	1·27	1·55
2·8	—	1·11	·19	3·2	·94	1·39	·40
5·2	—	·28	·32	3·4	·18	·27	·16
7·5	·28	1·67	·32	6·5	·39	·94	·39
1·4	—	·56	·20	2·0	—	·85	·25
10·4	—	·83	·42	9·4	—	·85	·48
5·8	—	·56	·19	5·4	·03	·72	·25
5·5	·83	1·67	·34	9·2	·39	3·71	·72
57·3	·56	·83	2·32	57·2	1·54	1·99	2·67
91·0	—	1·11	2·56	94·0	·39	1·42	2·30
6·9	—	·28	·46	9·1	·03	·06	·62
2·6	—	·56	·17	2·6	·18	·39	·19
33·4	—	·83	1·78	37·3	·03	·36	1·97
10·9	·28	1·39	·69	8·1	—	·91	·46
27·3	—	—	1.15	26·8	·03	·12	·90
70·5	—	—	1·96	77·5	—	·15	2·52
—	—	—	—	·2	·12	·03	·01
—	·56	—	—	·4	·55	·09	·04
90·4	—	·56	3·14	99·3	·43	1·00	3·50
—	—	—	—	—	—	—	—
·6	—	—	—	2·4	—	—	·05
—	·28	—	—	—	—	—	—
591·1	3·06	14·21	26·51	654·3	5·65	18·97	29·49

* The average ratios for 10 years will be given in future years.

ABSTRACT C.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS among the TROOPS stationed in IRELAND during the

Average Strength in Annual Returns, 23,852. † Average Strength, including Men detached, 25,224. Diseases.	Admissions into Hospital.	Died			Invalids discharged the Service.	Average Number constantly Sick.
		With the Regiment.	Absent from Regiment.	Total.		
I.—GENERAL DISEASES.						
GROUP "A."						
Sub-Group I. Small-pox	1	—	—	—	—	·35
Other Eruptive Fevers	168	3	—	3	—	13·09
Enteric Fever	61	12	1	13	—	10·09
Other Continued Fevers	82	1	—	1	—	3·81
Yellow Fever	—	—	—	—	—	—
Cholera	—	—	—	—	—	—
Dysentery	2	—	—	—	—	·66
Other Diseases	713	10	1	11	—	22·34
Total	1,027	26	2	28	—	49·74
Sub-Group II.—Malarial Fevers	112	—	—	—	—	4·77
Sub-Group III.—Septic Diseases	19	2	—	2	—	1·26
Sub-Group IV. Syphilis, Primary	935	—	—	—	—	21·25
" Secondary	631	2	—	2	14	64·28
Gonorrhœa	1,459	—	—	—	1	106·45
Total	3,025	2	—	2	·15	261·98
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—
GROUP "B."						
Sub-Group I.—Parasitic Diseases	9	—	—	—	—	·24
Sub-Group II. Scurvy	3	—	—	—	—	·32
Alcoholism	49	2	—	2	5	1·69
GROUP "C."						
Debility, &c.	144	—	—	—	13	9·85
GROUP "D."						
Rheumatism	595	1	—	1	13	37·27
Tubercular Diseases	72	20	3	23	42	12·61
Other Diseases	110	3	—	3	5	8·36
II.—LOCAL DISEASES.						
Diseases of the—						
1. Nervous System Nervous Diseases	154	9	—	9	22	9·55
Mental "	37	—	—	—	34	9·87
2. Eye	287	—	—	—	15	19·21
3 & 4. Other Organs of Special Senses	174	—	—	—	21	13·16
5. Circulatory System	310	7	—	7	12	31·43
6. Respiratory "	1,471	26	5	31	7	73·01
7. Digestive "	2,411	3	1	4	19	77·24
8. Lymphatic and Glandular System	262	1	—	1	2	31·96
9. Urinary System	63	6	1	7	6	5·85
10. Generative "	615	—	—	—	4	39·43
11. Organs of Locomotion	284	1	—	1	[31	18·09
12. Connective Tissue	536	—	—	—	2	22·23
13. Skin	1,657	—	—	—	5	66·10
III.—POISONS	1	1	—	1	—	·05
IV.—INJURIES.						
1. General	2	8	—	8	—	·15
2. Local	2,494	11	—	11	13	102·09
3. In Action	—	—	—	—	—	—
No appreciable disease	56	—	—	—	—	1·96
Cause unknown (refers to deaths only)	—	—	—	—	—	—
General Total	15,979	129	12	141	386	909·47

† Ratios of deaths and invalids calculated on this strength.

into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK Year 1895, with the Ratios per 1,000 of the Strength.

Ratio per 1,000.				*Average Ratio per 1,000 from 1886 to 1894.			
Admissions.	Deaths.	Invalids Discharged the Service.	Constantly Sick.	Admissions.	Deaths.	Invalids Discharged the Service.	Constantly Sick.
—	—	—	·02	—	—	—	—
7·1	·12	—	·55	4·3	·04	—	·28
2·6	·51	—	·42	2·3	·48	—	·38
3·4	·04	—	·16	6·9	·01	—	·24
—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
·1	—	—	—	·3	·02	·03	·03
29·9	·44	—	·94	11·9	·02	—	·31
43·1	1·11	—	2·09	25·7	·57	·03	1·24
4·7	—	—	·20	2·8	·01	·01	·09
·8	·08	—	·05	1·7	·03	·01	·11
39·2	—	—	3·83	54·6	—	—	5·00
26·4	·08	·55	2·69	28·9	·06	·59	2·62
61·2	—	·04	4·46	86·8	—	·03	5·77
126·8	·08	·59	10·98	170·3	·06	·62	13·39
—	—	—	—	—	—	—	—
·3	—	—	·01	·4	—	—	·01
·1	—	—	·02	·2	·00	—	·01
2·1	0·8	·20	·07	2·1	·02	—	·06
6·0	—	·51	·41	7·2	·01	·94	·50
24·9	·04	·51	1·56	31·8	·03	·50	1·98
3·0	·91	1·67	·53	3·3	·88	1·54	·53
4·6	·12	·20	·35	4·9	·10	·29	·36
6·5	·36	·87	·40	6·6	·28	1·06	·44
1·5	—	1·35	·41	1·7	·01	1·13	·29
12·0	—	·59	·81	12·1	—	·59	·75
7·3	—	·83	·55	6·7	·00	·61	·40
13·0	·28	4·44	1·32	8·5	·35	2·44	·78
61·7	1·23	·28	3·06	60·4	1·08	·77	3·11
101·1	·16	·75	3·24	93·3	·28	·76	2·82
11·0	·04	·08	1·34	15·7	—	·11	1·60
2·6	·28	·24	·25	1·8	·13	·26	·19
25·8	—	·16	1·65	34·8	·01	·25	2·02
11·9	·04	1·23	·76	8·2	·03	·72	·62
22·5	—	·08	·93	23·0	—	·06	1·02
69·6	—	·20	2·77	70·9	—	·21	2·76
—	·04	—	—	·1	·03	·01	—
·1	·32	—	·01	·1	·43	·01	·01
104·6	·44	·51	4·28	100·6	·34	·59	4·06
—	—	—	—	—	—	·00	—
2·3	—	—	·08	2·3	—	—	·08
—	—	—	—	—	—	—	—
669·9	5·59	15·30	38·13	697·2	4·69	13·50	39·23

* The average ratios for 10 years will be given in future years.

ABSTRACT D.—TABLE showing the AVERAGE STRENGTH, SICKNESS, UNITED KINGDOM during the Year 1895,

Average Strength.	Officers, 4,029.			
Diseases.	Attacks of Illness.	Deaths.	Ratio per 1,000. Attacks.	Ratio per 1,000. Deaths.
I.—GENERAL DISEASES.				
GROUP "A."				
Sub-Group I. Small-pox	—	—	—	—
Other Eruptive Fevers	21	1	5·2	·25
Enteric Fever	9	2	2·2	·50
Other Continued Fevers	27	—	6·7	—
Yellow Fever	—	—	—	—
Cholera	—	—	—	—
Dysentery	2	—	·5	—
Other Diseases	423	1	105·0	·25
Total	482	4	119·6	·99
Sub-Group II.—Malarial Fevers	53	—	14·4	—
Sub-Group III.—Septic Diseases	1	—	·2	—
Sub-Group IV. Syphilis, Primary	3	—	·8	—
„ Secondary	1	—	·2	—
Gonorrhœa	15	—	3·7	—
Total	19	—	4·7	—
Sub-Group V.—Hydrophobia, &c.	—	—	—	—
GROUP "B."				
Sub-Group I.—Parasitic Diseases	—	—	—	—
Sub-Group II. Scurvy	—	—	—	—
Alcoholism	—	—	—	—
GROUP "C."				
Debility, &c.	26	—	6·5	—
GROUP "D."				
Rheumatism	71	—	17·6	—
Tubercular Diseases	2	—	·5	—
Other Diseases	6	2	1·5	·50
II.—LOCAL DISEASES.				
Diseases of the—				
1. Nervous System: Nervous Diseases	34	—	8·4	—
1. Nervous System: Mental „	4	—	1·0	—
2. Eye	10	—	2·5	—
3 & 4. Other Organs of Special Senses	10	—	2·5	—
5. Circulatory System	7	3	1·7	·74
6. Respiratory „	247	3	61·3	·74
7. Digestive „	254	2	63·0	·50
8. Lymphatic and Glandular System	14	—	3·5	—
9. Urinary System	24	1	6·0	·25
10. Generative „	24	—	6·0	—
11. Organs of Locomotion	42	—	10·4	—
12. Connective Tissue	45	—	11·2	—
13. Skin	41	—	10·2	—
III.—POISONS	—	—	—	—
IV.—INJURIES.				
1. General	2	1	·5	·25
2. Local	266	3	66·0	·74
3. In Action	—	—	—	—
No appreciable disease	—	—	—	—
Cause unknown (refers to deaths only)	—	—	—	—
General Total	1,689	19	419·2	4·71

and MORTALITY among the OFFICERS, WOMEN, and CHILDREN in the with the Ratios per 1,000 of the Strength.

Women, 11,184.				Children, 21,607.			
Attacks of Illness.	Deaths.	Ratio per 1,000.		Attacks of Illness.	Deaths.	Ratio per 1,000.	
		Attacks.	Deaths.			Attacks.	Deaths.
—	—	—	—	1	—	—	—
20	—	1·8	—	1,970	48	91·2	2·22
12	1	1·1	·09	31	2	1·4	·09
12	—	1·1	—	157	—	7·3	—
—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
5	—	·4	—	9	—	·4	—
402	—	35·9	—	1,203	40	55·7	1·85
451	1	40·3	·09	3,371	90	156·0	4·16
47	—	4·2	—	69	—	3·2	—
17	4	1·5	·36	2	1	·1	·05
1	—	·1	—	—	—	—	—
15	—	1·3	—	25	6	1·2	·28
—	—	—	—	—	—	—	—
16	—	1·4	—	25	6	1·2	·28
—	—	—	—	—	—	—	—
10	—	·9	—	67	—	3·1	—
—	—	—	—	—	—	—	—
4	—	·4	—	—	—	—	—
748	2	66·4	·18	524	54	24·3	2·50
178	1	15·9	·09	44	—	2·0	—
51	8	4·6	·71	40	16	1·9	·74
99	2	8·9	·18	117	3	5·4	·14
186	6	16·6	·54	208	78	9·6	3·61
5	—	·4	—	—	—	—	—
39	—	3·5	—	244	—	11·3	—
18	—	1·6	—	92	—	4·3	—
92	7	8·2	·62	13	1	·6	·05
563	11	52·1	·98	3,067	138	141·9	6·39
773	7	69·1	·62	1,890	61	87·5	2·82
14	—	1·3	—	92	2	4·3	·09
9	2	·8	·18	10	—	·5	—
426	5	38·9	·45	21	—	1·0	—
11	—	1·0	—	28	1	1·3	·05
76	—	6·8	—	156	2	7·2	·09
128	—	11·4	—	783	—	36·2	—
3	3	·3	·27	1	—	—	—
—	—	—	—	3	5	·1	·23
56	1	5·0	·09	448	2	20·7	·09
—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
4,046	60	361·5	5·36	11,315	460	523·7	21·29

ABSTRACT No. II.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS the TROOPS stationed at GIBRALTAR during the Year 1895, with the Ratios

Average Strength, 4,690. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent Home.	Invalids. Number finally Discharged the Service.	Average Number constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	—	—	—	—	—	—	—
Other Eruptive Fevers	1	—	—	—	—	—	·10
Enteric Fever	12	4	—	4	—	—	2·61
Other Continued Fevers	87	—	—	—	3	1	7·39
Yellow Fever	—	—	—	—	—	—	—
Cholera	—	—	—	—	—	—	—
Dysentery	4	—	—	—	—	—	·12
Other Diseases	3	—	—	—	—	—	·15
Total	107	4	—	4	3	1	10·37
Sub-Group II.—Malarial Fevers	116	—	—	—	—	—	2·87
Sub-Group III.—Septic Diseases	6	—	—	—	—	—	·23
Sub-Group IV. Syphilis, Primary	38	—	—	—	—	—	4·28
" Secondary	139	—	—	—	5	2	18·64
Gonorrhœa	670	—	—	—	—	—	54·43
Total	847	—	—	—	5	2	77·35
Sub-Group V.—Hydrophobia, &c.	1	1	—	1	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	9	—	—	—	—	—	·16
Sub-Group II. Scurvy	—	—	—	—	—	—	—
Alcoholism	18	—	—	—	—	—	·42
GROUP "C."							
Debility, &c.	27	—	—	—	7	1	1·67
GROUP "D."							
Rheumatism	99	—	—	—	2	2	5·61
Tubercular Diseases	11	3	1	4	8	9	2·12
Other Diseases	39	1	—	1	1	—	2·99
II.—LOCAL DISEASES.							
Diseases of the—							
1. Nervous System Nervous Diseases	43	2	—	2	5	3	3·31
1. Nervous System Mental "	4	—	—	—	4	10	·43
2. Eye	46	—	—	—	6	5	4·11
3 & 4. Other Organs of Special Senses	59	—	—	—	4	3	4·47
5. Circulatory System	23	1	—	1	7	9	3·23
6. Respiratory "	176	1	—	1	3	1	10·02
7. Digestive "	504	1	—	1	3	3	14·43
8. Lymphatic and Glandular System	115	—	—	—	1	—	16·44
9. Urinary System	12	—	—	—	2	2	1·06
10. Generative "	726	—	—	—	1	1	74·81
11. Organs of Locomotion	35	1	—	1	1	2	1·61
12. Connective Tissue	117	—	—	—	—	—	5·34
13. Skin	262	—	—	—	1	—	12·36
III.—POISONS	—	—	—	—	—	—	—
IV.—INJURIES							
1. General	—	1	—	1	—	—	—
2. Local	468	1	—	1	3	4	20·72
3. In Action	—	—	—	—	—	—	—
No appreciable disease	29	—	—	—	—	—	1·16
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	3,890	17	1	18	67	58	277·29
Average of 10 years, 1885-94	—	—	—	—	—	—	—

into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK among per 1,000 of the Strength, and the Average Ratios for 10 Years.*

Ratio per 1,000.					Average Ratio per 1,000 from 1886 to 1894.†				
Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
—	—	—	—	—	·1	—	—	—	·01
·2	—	—	—	·02	·6	—	—	—	·05
2·6	·85	—	—	·56	9·8	1·64	3·09	—	1·74
15·5	—	·64	·21	1·57	26·4	·05	2·87	·07	3·11
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
·9	—	—	—	·03	·4	·02	—	—	·03
·6	—	—	—	·03	19·1	·02	—	—	·34
23·8	·85	·64	·21	2·21	56·4	1·73	5·96	·07	5·28
24·7	—	—	—	·61	1·2	·02	·05	·05	·04
1·3	—	—	—	·05	·6	·05	—	—	·03
8·1	—	—	—	·01	29·9	—	—	·02	2·96
29·6	—	1·07	·43	3·97	26·9	·12	·67	·19	2·47
142·9	—	—	—	11·61	120·7	—	·02	—	8·40
180·6	—	1·07	·43	16·40	177·5	·12	·69	·21	13·85
·2	·21	—	—	—	—	—	—	—	—
1·9	—	—	—	·03	·7	—	—	—	·02
—	—	—	—	—	—	—	—	—	—
3·8	—	—	—	·09	5·3	·02	·02	—	·17
5·7	—	1·49	·21	·36	4·5	·02	1·28	·93	·31
21·1	—	·43	·43	1·19	30·2	—	1·12	·26	1·87
2·3	·85	1·71	1·92	·45	1·9	·40	1·52	1·07	·35
8·3	·21	·21	—	·64	4·3	·14	·38	·24	·37
9·2	·43	1·07	·64	·71	6·9	·19	·93	·93	·43
·9	—	·85	2·13	·09	·8	·02	·78	·50	·21
9·8	—	1·28	1·07	·88	11·1	—	·67	·62	·82
12·6	—	·85	·64	·95	8·3	—	·59	·52	·52
4·9	·21	1·49	1·92	·69	3·1	·36	·93	·83	·30
37·5	·21	·64	·21	2·14	27·0	·40	·78	·43	1·51
107·5	·21	·64	·64	3·08	83·7	·29	·47	·21	2·33
24·5	—	·21	—	3·50	11·2	—	·10	·10	1·28
2·6	—	·43	·43	·23	1·5	·14	·24	·14	·15
154·8	—	·21	·21	15·95	98·7	·02	·02	·02	7·36
7·5	·21	·21	·43	·34	5·3	·02	·59	·43	·45
24·9	—	—	—	1·14	18·7	—	·07	·05	·83
55·9	—	·21	—	2·63	45·3	—	·02	·05	1·77
—	—	—	—	—	—	·02	—	—	—
—	·21	—	—	—	·2	·21	·02	·02	·03
99·8	·21	·64	·85	4·42	102·6	·38	·38	·33	4·31
—	—	—	—	—	—	—	—	—	—
	—	—	—	·25	2·8	—	—	—	·08
—	—	—	—	—	—	—	—	—	—
831·3	3·84	14·28	12·37	59·12	710·0	4·58	17·61	8·12	44·77
742·2	4·90	19·64	8·71	45·96	—	—	—	—	—

† The average ratios for 10 years will be given in future years.

ABSTRACT No. III.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS, and DEATHS among the TROOPS stationed at MALTA during the Year 1895, with the Ratios

Average Strength, 8,292. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent Home.	Invalids. Number finally Discharged the Service.	Average Number constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	—	—	—	—	—	—	—
Other Eruptive Fevers	2	—	—	—	—	—	·18
Enteric Fever	23	10	—	10	1	—	4·27
Other Continued Fevers	1,401	12	1	13	40	6	108·97
Yellow Fever	—	—	—	—	—	—	—
Cholera	—	—	—	—	—	—	—
Dysentery	45	3	—	3	—	—	3·14
Other Diseases	—	—	—	—	—	—	·25
Total	1,471	25	1	26	41	6	116·81
Sub-Group II.—Malarial Fevers	116	1	1	2	—	—	5·34
Sub-Group III.—Septic Diseases	5	1	—	1	—	—	·47
Sub-Group IV. Syphilis, Primary	217	—	—	—	—	—	26·76
„ Secondary	184	1	—	1	6	1	25·76
Gonorrhœa	647	—	—	—	—	—	51·51
Total	1,048	1	—	1	6	1	104·03
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	13	—	—	—	—	—	·48
Sub-Group II. Scurvy	1	—	—	—	—	—	·05
Alcoholism	15	—	—	—	—	—	·74
GROUP "C."							
Debility, &c.	51	—	—	—	6	2	5·89
GROUP "D."							
Rheumatism	177	—	—	—	2	3	15·04
Tubercular Diseases	26	4	2	6	14	10	5·70
Other Diseases	58	—	—	—	2	1	3·13
II.—LOCAL DISEASES.							
Diseases of the—							
1. Nervous System Nervous Diseases	49	—	—	—	7	7	3·72
Mental „	14	—	—	—	6	9	4·12
2. Eye	106	—	—	—	4	3	6·50
3 & 4. Other Organs of Special Senses	114	—	—	—	4	3	8·53
5. Circulatory System	54	1	—	1	17	14	6·78
6. Respiratory „	213	4	—	4	4	1	15·94
7. Digestive „	610	6	—	6	2	—	21·27
8. Lymphatic and Glandular System	130	—	—	—	—	—	17·33
9. Urinary System	13	1	—	1	—	—	·93
10. Generative „	232	—	—	—	—	—	14·95
11. Organs of Locomotion	60	—	—	—	2	4	5·39
12. Connective Tissue	265	—	—	—	—	—	11·01
13. Skin	758	—	—	—	—	—	28·61
III.—POISONS	3	—	—	—	—	—	·14
IV.—INJURIES.							
1. General	10	6	—	6	2	2	1·60
2. Local	773	3	—	3	3	3	35·79
3. In Action	—	—	—	—	—	—	—
No appreciable disease	12	—	—	—	—	—	·58
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	6,397	53	4	57	122	69	440·85
*Average of 10 years, 1885-94	—	—	—	—	—	—	—

into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK among per 1,000 of the Strength, and the Average Ratios for 10 Years.*

Ratio per 1,000.					Average Ratio per 1,000 from 1886 to 1894.†				
Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
—	—	—	—	—	·1	—	—	—	—
·2	—	—	—	·02	·3	—	—	—	·02
2·8	1·21	·12	—	·51	6·7	2·30	·82	·02	1·29
169·0	1·57	4·92	·72	13·14	113·2	1·04	4·31	·31	9·04
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	·02	—	—	—
5·4	·36	—	—	·38	4·3	·21	·19	·05	·36
—	—	—	—	·03	6·0	·05	·02	—	·18
177·4	3·14	4·95	·73	14·06	130·6	3·62	5·30	·38	10·89
14·0	·24	—	—	·64	10·7	·16	·33	·05	·60
·6	·12	—	—	·06	·7	·07	—	—	·07
28·2	—	—	—	3·23	16·9	—	—	—	1·82
23·2	·12	·73	·12	3·11	14·3	·02	·39	·25	1·50
78·0	—	—	—	6·21	66·3	—	·06	·03	4·76
126·4	·12	·73	·12	12·55	97·5	·02	·48	·28	8·08
—	—	—	—	—	—	—	—	—	—
1·6	—	—	—	·06	1·3	—	—	·02	·63
·1	—	—	—	—	—	—	—	—	—
1·8	—	—	—	·09	3·0	·02	·02	—	·11
6·1	—	·73	·24	·71	10·7	—	1·00	·92	1·03
21·4	—	·24	·36	1·81	25·3	·10	·94	·43	1·90
3·1	·73	1·60	1·21	·69	2·6	·90	1·56	1·33	·42
7·0	—	·24	·12	·38	3·8	·10	·13	·18	·25
5·9	—	·84	·84	·45	6·2	·18	·74	·83	·40
1·7	—	·73	1·09	·50	1·7	·05	1·58	1·66	·37
12·8	—	·48	·36	·78	10·0	—	·51	·33	·63
13·7	—	·48	·36	1·03	10·7	—	·74	·71	·60
6·5	·12	2·05	1·69	·82	7·0	·21	1·68	1·55	·71
25·7	·48	·48	·12	1·92	21·9	·56	1·28	·58	1·71
73·6	·73	·24	—	2·57	81·9	·54	·64	·31	2·87
15·7	—	—	—	2·09	6·4	—	·11	·08	·60
1·6	·12	—	—	·11	2·0	·02	·63	·39	·21
28·0	—	—	—	1·80	41·0	·02	·36	·33	2·87
7·2	—	·24	·48	·65	5·7	·03	·41	·39	·46
32·0	—	—	—	1·33	27·4	·02	·07	·02	1·12
91·4	—	—	—	3·45	41·4	—	·18	·07	2·06
·4	—	—	—	·02	·2	·05	—	—	0·1
1·2	·72	·24	·24	·19	·5	·56	·02	—	·04
93·2	·36	·36	·36	4·32	87·0	·31	·58	·44	3·93
—	—	—	—	—	—	—	—	—	—
1·4	—	—	—	·07	2·6	—	—	—	·11
—	—	—	—	—	—	—	—	—	—
771·5	6·87	14·71	8·32	53·17	639·3	7·54	19·28	11·30	42·20
659·7	8·04	19·82	11·38	43·32	—	—	—	—	—

† The average ratios for 10 years will be given in future years.

ABSTRACT No. IIIa.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS the ROYAL MALTA ARTILLERY stationed at MALTA during the Year 1895,

Average Strength, 376. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent Home.	Invalids. Number finally Discharged the Service.	Average Number constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	—	—	—	—	—	—	—
Other Eruptive Fevers	—	—	—	—	—	—	—
Enteric Fever	—	—	—	—	—	—	—
Other Continued Fevers	21	—	—	—	—	—	·75
Yellow Fever	—	—	—	—	—	—	—
Cholera	—	—	—	—	—	—	—
Dysentery	1	—	—	—	—	—	·03
Other Diseases	8	—	—	—	—	—	·20
Total	30	—	—	—	—	—	·98
Sub-Group II.—Malarial Fevers	—	—	—	—	—	—	—
Sub-Group III.—Septic Diseases	—	—	—	—	—	—	—
Sub-Group IV. Syphilis, Primary	6	—	—	—	—	—	·32
„ Secondary	—	—	—	—	—	—	—
Gonorrhœa	7	—	—	—	—	—	·47
Total	13	—	—	—	—	—	·79
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	—	—	—	—	—	—	—
Sub-Group II. Scurvy	—	—	—	—	—	—	—
Alcoholism	—	—	—	—	—	—	—
GROUP "C."							
Debility, &c.	10	—	—	—	—	—	·37
GROUP "D."							
Rheumatism	14	—	—	—	—	—	·66
Tubercular Diseases	1	1	—	1	—	—	·02
Other Diseases	—	—	—	—	—	—	—
II.—LOCAL DISEASES.							
Diseases of the—							
1. Nervous System Nervous Diseases	3	1	—	1	—	—	·03
Mental „	1	—	—	—	—	1	·07
2. Eye	9	—	—	—	—	—	·23
3 & 4. Other Organs of Special Senses	—	—	—	—	—	—	—
5. Circulatory System	1	—	—	—	—	—	·03
6. Respiratory „	23	—	—	—	—	—	·91
7. Digestive „	21	—	—	—	—	—	·37
8. Lymphatic and Glandular System	—	—	—	—	—	—	—
9. Urinary System	—	—	—	—	—	—	—
10. Generative „	2	—	—	—	—	—	·06
11. Organs of Locomotion	2	—	—	—	—	2	·13
12. Connective Tissue	5	—	—	—	—	—	·20
13. Skin	15	—	—	—	—	—	·87
III.—POISONS	—	1	—	1	—	—	—
IV.—INJURIES.							
1. General	—	—	—	—	—	—	—
2. Local	31	—	—	—	—	—	·64
3. In Action	—	—	—	—	—	—	—
No appreciable disease	—	—	—	—	—	—	—
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	181	3	—	3	—	3	6·36
* Average of 10 years, 1885–94	—	—	—	—	—	—	—

into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK among with the Ratios per 1,000 of the Strength and the average Ratios for 10 Years.*

Ratio per 1,000.					Average Ratio per 1,000 from 1886 to 1894.†				
Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	1·8	—	—	—	—
—	—	—	—	—	·3	·30	—	—	·05
55·8	—	—	—	1·99	62·0	—	—	—	—
—	—	—	—	—	—	—	—	—	2·53
—	—	—	—	—	—	—	—	—	—
2·7	—	—	—	·08	·3	·30	—	—	—
21·3	—	—	—	·53	10·9	—	—	—	·24
79·8	—	—	—	2·61	75·4	·61	—	—	2·83
—	—	—	—	—	1·2	—	—	—	·02
—	—	—	—	—	·9	—	—	—	·04
16·0	—	—	—	·85	10·9	—	—	—	·56
—	—	—	—	—	8·2	—	—	·30	·71
18·6	—	—	—	1·23	32·2	—	—	·30	2·64
34·6	—	—	—	2·10	51·3	—	—	·61	4·21
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	·6	—	—	—	·01
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
26·6	—	—	—	·98	16·7	—	—	3·65	·97
37·2	—	—	—	1·76	25·8	—	—	·30	·92
2·7	2·66	—	—	·05	3·0	—	—	1·52	·50
—	—	—	—	—	4·6	—	—	·30	·32
8·0	2·66	—	—	·08	4·6	—	—	·30	·12
2·7	—	—	2·66	·19	·9	—	—	·91	·13
23·9	—	—	—	·61	22·5	—	—	·61	1·03
—	—	—	—	—	7·0	—	—	·61	·20
2·7	—	—	—	·08	4·3	·30	—	1·21	·37
61·2	—	—	—	2·43	66·5	·30	—	·61	2·82
55·8	—	—	—	·98	84·8	—	—	1·21	1·69
—	—	—	—	—	2·7	—	—	—	·10
—	—	—	—	—	1·8	—	—	·30	·11
5·3	—	—	—	·16	6·7	—	—	—	·20
5·3	—	—	5·32	·35	5·5	—	—	2·13	30
13·3	—	—	—	·53	13·7	—	—	—	40
39·9	—	—	—	2·31	70·2	—	—	—	2·29
—	2·66	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
82·4	—	—	—	1·70	128·5	·61	—	·61	3·70
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	·3	—	—	—	·01
—	—	—	—	—	—	—	—	—	—
481·4	7·98	—	7·98	16·91	509·5	1·82	—	14·89	23·29
621·0	1·93	—	14·54	23·61	—	—	—	—	—

† The average ratios for 10 years will be given in future years.

ABSTRACT No. IV.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS the TROOPS stationed in CANADA during the Year 1895, with the

Average Strength, 1,347. Diseases	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent Home.	Invalids. Number finally Discharged the Service.	Average Number constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	—	—	—	—	—	—	—
Other Eruptive Fevers	8	1	—	1	—	—	·68
Enteric Fever	1	1	—	1	—	—	·05
Other Continued Fevers	2	—	—	—	—	—	·03
Yellow Fever	—	—	—	—	—	—	—
Cholera	—	—	—	—	—	—	—
Dysentery	1	—	—	—	—	—	·04
Other Diseases	2	—	—	—	—	—	·07
Total	14	2	—	2	—	—	·87
Sub-Group II.—Malarial Fevers	2	—	—	—	—	—	·05
Sub-Group III.—Septic Diseases	7	—	—	—	—	—	·72
Sub-Group IV. Syphilis, Primary	37	—	—	—	—	—	2·60
" Secondary	11	—	—	—	—	—	·63
Gonorrhœa	120	—	—	—	—	—	4·58
Total	168	—	—	—	—	—	7·81
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	—	—	—	—	—	—	—
Sub-Group II. Scurvy	—	—	—	—	—	—	—
Alcoholism	7	—	—	—	—	—	·23
GROUP "C."							
Debility, &c.	5	—	—	—	2	—	·34
GROUP "D."							
Rheumatism	46	—	—	—	4	—	2·71
Tubercular Diseases	3	1	—	1	2	2	·24
Other Diseases	16	—	—	—	1	—	·77
II.—LOCAL DISEASES.							
Diseases of the— 1. Nervous System Nervous Diseases	19	—	—	—	2	4	·89
" Mental	—	—	—	—	1	1	—
2. Eye	16	—	—	—	3	2	·68
3 & 4. Other Organs of Special Senses	13	—	—	—	2	1	·69
5. Circulatory System	12	1	—	1	2	2	·56
6. Respiratory "	25	1	—	1	—	—	1·05
7. Digestive "	139	—	—	—	—	—	3·64
8. Lymphatic and Glandular System	43	—	—	—	1	—	2·97
9. Urinary System	2	—	—	—	—	—	·07
10. Generative "	38	—	—	—	—	—	1·33
11. Organs of Locomotion	12	—	—	—	1	1	·73
12. Connective Tissue	36	—	—	—	—	—	1·37
13. Skin	55	—	—	—	—	—	1·89
III.—POISONS	—	1	—	1	—	—	—
IV.—INJURIES.							
1. General	1	2	—	2	—	—	·03
2. Local	109	—	—	—	—	—	3·93
3. In Action	—	—	—	—	—	—	—
No appreciable disease	1	—	—	—	—	—	·09
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	789	8	—	8	20	13	33·66
* Average of 10 years, 1885-94	—	—	—	—	—	—	—

into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK among Ratios per 1,000 of the Strength, and the Average Ratios for 10 Years.*

Ratio per 1,000.					Average Ratio per 1,000 from 1886 to 1894.†				
Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
—	—	—	—	—	—	—	—	—	—
5·9	·74	—	—	·50	1·5	—	—	—	.08
·7	·74	—	—	·04	1·5	·16	·08	—	·28
1·5	—	—	—	·02	2·6	—	—	—	·13
—	—	—	—	—	·1	—	—	—	·01
—	—	—	—	—	—	—	—	—	—
·7	—	—	—	·03	—	—	—	—	—
1·5	—	—	—	·05	7·3	—	—	—	·25
10·4	1·48	—	—	·65	13·0	·16	·08	—	·74
1·5	—	—	—	·04	1·2	—	—	—	·05
5·2	—	—	—	·53	2·3	·08	—	—	·11
27·5	—	—	—	1·93	27·4	—	—	—	1·95
8·1	—	—	—	·47	21·1	—	·57	·49	1·83
89·1	—	—	—	3·40	58·0	—	—	—	2·90
124·7	—	—	—	5·80	106·5	—	·57	·49	6.67
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	·3	—	—	—	·01
—	—	—	—	—	—	—	—	—	—
5·2	—	—	—	·17	2·7	—	—	—	·08
3·7	—	1·48	—	·25	2·3	—	·97	·57	·16
34·1	—	2·97	—	2·01	28·0	—	·49	·08	1·77
2·2	·74	1·48	1·48	·18	2·0	·89	1·87	1·29	·28
11·9	—	·74	—	·57	3·6	—	·32	·57	·21
14·1	—	1·48	2·97	·66	9·6	·49	2·18	1·86	·71
—	—	—	·74	—	·9	·08	·81	·73	·17
11·9	—	2·23	1·48	·50	8·1	—	·57	·73	·36
9·7	—	1·48	·74	·51	6·0	—	·49	·57	·42
8·9	·74	1·48	1·48	·42	9·5	·40	2·18	2·34	·89
18·6	·74	—	—	·78	38·2	·73	1·29	1·29	2·18
103·2	—	—	—	2·70	72·7	·24	·24	·16	1·82
32·0	—	1·74	—	2·21	14·0	—	—	—	1·40
1·5	—	—	—	·05	2·7	·16	·81	·40	·31
28·2	—	—	—	·99	25·2	—	·24	·16	1·18
8·9	—	·74	·74	·54	8·7	—	·89	·81	·73
26·7	—	—	—	1·02	21·0	—	·16	—	·87
40·6	—	—	—	1·40	33·6	—	·08	·24	1·27
—	·74	—	—	—	·3	·16	—	—	—
·7	1·48	—	—	·02	·2	·40	—	—	·01
80·9	—	—	—	2·93	76.0	·32	·73	·57	3·29
—	—	—	—	—	—	—	—	—	—
·7	—	—	—	·07	1·5	—	—	—	·07
—	—	—	—	—	—	—	—	—	—
585·7	5·94	14·85	9·65	24·99	490·1	4·12	14·46	12·85	25·74
511·1	4·47	15·60	14·21	26·89	—	—	—	—	—

† The average ratios for 10 years will be given in future years.

ABSTRACT No. V.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS the TROOPS stationed at BERMUDA during the Year 1895, with the Ratios

Average Strength, 1,447. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent Home.	Invalids. Number finally Discharged the Service.	Average Number constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	—	—	—	—	—	—	—
Other Eruptive Fevers	—	—	—	—	—	—	—
Enteric Fever	107	20	—	20	—	—	16·33
Other Continued Fevers	69	—	—	—	—	—	3·47
Yellow Fever	—	—	—	—	—	—	—
Cholera	—	—	—	—	—	—	—
Dysentery	3	—	—	—	—	—	·28
Other Diseases	—	—	—	—	—	—	—
Total	179	20	—	20	—	—	20·08
Sub-Group II.—Malarial Fevers	15	—	—	—	—	—	·70
Sub-Group III.—Septic Diseases	—	—	—	—	—	—	—
Sub-Group IV. Syphilis, Primary	18	—	—	—	—	—	1·57
" Secondary	26	—	—	—	1	—	3·00
Gonorrhœa	43	—	—	—	—	—	3·34
Total	87	—	—	—	1	—	7·91
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	1	—	—	—	—	—	·02
Sub-Group II. Scurvy	—	—	—	—	—	—	—
Alcoholism	7	—	—	—	—	—	·26
GROUP "C."							
Debility, &c.	19	—	—	—	1	—	·89
GROUP "D."							
Rheumatism	43	—	—	—	—	—	1·88
Tubercular Diseases	2	—	—	—	1	—	·21
Other Diseases	8	—	—	—	—	—	·37
II.—LOCAL DISEASES.							
Diseases of the—							
1. Nervous System Nervous Diseases	16	2	—	2	4	—	1·39
Mental "	3	—	—	—	2	—	·79
2. Eye	11	—	—	—	—	—	·17
3 & 4. Other Organs of Special Senses	12	—	—	—	—	—	·39
5. Circulatory System	3	1	—	1	1	1	·64
6. Respiratory "	36	2	—	2	2	1	1·93
7. Digestive "	221	—	—	—	1	—	4·66
8. Lymphatic and Glandular System	13	—	—	—	—	—	1·72
9. Urinary System	3	—	—	—	—	—	·27
10. Generative "	15	—	—	—	1	—	·60
11. Organs of Locomotion	9	—	—	—	1	—	·56
12. Connective Tissue	64	—	—	—	—	—	1·90
13. Skin	99	—	—	—	—	—	3·30
III.—POISONS	—	—	—	—	—	—	—
IV.—INJURIES.							
1. General	1	—	—	—	—	—	·04
2. Local	113	—	—	—	—	—	5·74
3. In Action	—	—	—	—	—	—	—
No appreciable disease	4	—	—	—	—	—	·23
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	984	25	—	25	15	6	50·86
* Average of 10 years, 1885-94	—	—	—	—	—	—	—

into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK among per 1,000 of the Strength, and the Average Ratios for 10 Years.*

Ratio per 1,000.					Average Ratio per 1,000 from 1886 to 1894.†				
Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
73·9	13·82	—	—	11·29	33·0	5·73	—	—	4·33
47·7	—	—	—	2·40	22·9	—	—	—	1·06
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
2·1	—	—	—	·19	1·5	·24	·08	·08	·09
—	—	—	—	—	5·0	—	—	—	·10
123·7	13·82	—	—	13·86	62·4	5·97	·08	·08	5·58
10·4	—	—	—	·48	·5	—	—	—	·01
—	—	—	—	—	·1	—	—	—	—
12·4	—	—	—	1·06	14·8	—	—	—	1·28
18·0	—	·69	—	2·07	17·4	—	·81	·57	1·51
29·7	—	—	—	2·31	20·0	—	—	—	1·35
60·1	—	·69	—	5·46	52·2	—	·81	·57	4·14
—	—	—	—	—	—	—	—	—	—
0·7	—	—	—	·01	1·3	—	—	—	·03
—	—	—	—	—	—	—	—	—	—
4·8	—	—	—	·18	7·8	·08	—	—	·23
13·1	—	·69	—	·62	10·3	—	1·21	·65	·63
29·7	—	—	—	1·30	18·2	—	·57	·40	·99
1·4	—	·69	—	·14	1·8	·65	1·13	1·05	·28
5·5	—	—	—	·26	4·4	—	·16	—	·33
11·0	1·38	2·76	1·38	·90	6·7	·57	·48	·24	·36
2·1	—	1·38	1·38	·55	1·4	—	·97	·89	·24
7·6	—	—	—	·12	12·4	—	·65	·57	·65
8·3	—	—	—	·27	9·4	—	·48	·73	·42
2·1	·69	·69	·69	·44	9·3	·49	1·94	1·78	·83
24·9	1·38	1·38	·69	1·73	25·9	·57	1·37	1·05	1·53
152·7	—	·69	—	3·22	102·7	·40	1·05	·65	2·96
9·0	—	—	—	1·19	12·0	—	·08	·16	1·16
2·1	—	—	—	·19	1·9	·16	·08	—	·10
10·4	—	·69	—	·41	17·5	—	·08	·08	·91
6·3	—	·69	—	·39	9·0	·08	1·05	·89	·76
44·2	—	—	—	1·31	27·9	—	·08	—	·99
68·4	—	—	—	2·28	54·3	—	·08	—	1·84
—	—	—	—	—	·2	·08	—	—	·02
·7	—	—	—	·03	·8	·40	—	—	·08
78·1	—	—	—	3·97	109·1	·48	·81	·48	4·11
—	—	—	—	—	—	—	—	—	—
2·8	—	—	—	·16	3·1	—	—	—	·07
—	—	—	—	—	—	—	—	—	—
660·0	17·28	10·36	4·15	39·09	562·6	9·93	13·16	10·25	29·25
555·7	10·24	14·23	9·80	28·76	—	—	—	—	—

† The average ratios for 10 years will be given in future years.

ABSTRACT No. VI.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS the EUROPEAN TROOPS stationed in the WEST INDIES during the Year 1895,

Average Strength, 1,287. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent Home.	Invalids. Number finally Discharged the Service.	Average Number constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	—	—	—	—	—	—	—
Other Eruptive Fevers	1	—	—	—	—	—	—
Enteric Fever	6	3	—	3	—	—	·89
Other Continued Fevers	49	—	—	—	—	—	1·48
Yellow Fever	11	5	—	5	—	—	·61
Cholera	—	—	—	—	—	—	—
Dysentery	11	—	—	—	—	—	·80
Other Diseases	8	—	—	—	—	—	·23
Total	85	8	—	8	—	—	4·01
Sub-Group II.—Malarial Fevers	107	1	—	1	—	—	4·17
Sub-Group III.—Septic Diseases	1	—	—	—	—	—	·01
Sub-Group IV. Syphilis, Primary	70	—	—	—	—	—	6·40
„ Secondary	59	—	—	—	2	1	6·61
Gonorrhœa	187	—	—	—	—	—	10·70
Total	316	—	—	—	2	1	23·71
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	1	—	—	—	—	—	·11
Sub-Group II. Scurvy	—	—	—	—	—	—	—
Alcoholism	7	1	—	1	—	—	·12
GROUP "C."							
Debility, &c.	25	—	—	—	4	2	1·51
GROUP "D."							
Rheumatism	70	—	—	—	3	—	4·60
Tubercular Diseases	1	—	—	—	1	2	·22
Other Diseases	9	—	—	—	3	1	·85
II.—LOCAL DISEASES.							
Diseases of the—							
1. Nervous System Nervous Diseases	15	1	—	1	2	1	·93
Mental „	1	—	—	—	1	1	·16
2. Eye	10	—	—	—	—	—	·60
3 & 4. Other Organs of Special Senses	35	—	—	—	2	2	1·56
5. Circulatory System	4	—	—	—	1	2	·45
6. Respiratory „	28	—	—	—	—	1	·94
7. Digestive „	88	—	—	—	—	—	3·06
8. Lymphatic and Glandular System	62	—	—	—	1	—	8·76
9. Urinary System	2	—	—	—	—	—	·06
10. Generative „	150	—	—	—	—	—	10·60
11. Organs of Locomotion	12	—	—	—	—	—	·95
12. Connective Tissue	53	—	—	—	—	—	1·91
13. Skin	121	—	—	—	—	—	4·77
III.—POISONS	4	1	—	1	—	—	·06
IV.—INJURIES.							
1. General	—	2	—	2	—	—	—
2. Local	161	—	—	—	2	1	6·06
3. In Action	—	—	—	—	—	—	—
No appreciable disease	6	—	—	—	—	—	·22
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	1,374	14	—	14	22	14	80·40
* Average of 10 Years 1885-94	—	—	—	—	—	—	—

into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK among with the Ratios per 1,000 of the Strength, and the Average Ratios for 10 Years *

Ratio per 1,000.					Average Ratio per 1,000 from 1886 to 1894.†				
Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	4·8	—	—	—	·14
4·7	2·33	—	—	·69	10·6	2·81	·10	—	1·46
38·1	—	—	—	1·15	109·5	·19	—	—	3·55
8·5	3·88	—	—	·47	1·2	·68	—	—	·04
—	—	—	—	—	—	—	—	—	—
8·5	—	—	—	·62	6·6	·49	·29	—	·39
6·2	—	—	—	·18	22·9	—	—	—	·57
66·0	6·21	—	—	3·11	155·6	4·17	·39	—	6·15
83·1	·78	—	—	3·24	42·7	·97	·58	·10	1·86
·8	—	—	—	·01	·5	—	—	—	·03
54·4	—	—	—	4·97	41·2	—	—	—	3·51
45·8	—	1·55	·78	5·14	38·3	·19	2·04	·78	3·88
145·3	—	—	—	8·31	151·7	—	·19	—	11·06
245·5	—	1·55	·78	18·42	231·2	·19	2·23	·78	18·45
—	—	—	—	—	—	—	—	—	—
·8	—	—	—	·09	1·5	—	—	—	·04
—	—	—	—	—	—	—	—	—	—
5·4	·78	—	—	·09	8·0	—	—	—	·20
19·4	—	3·11	1·55	1·17	14·6	—	2·04	·97	·96
54·4	—	2·33	—	3·57	35·1	·10	·97	·68	2·05
·8	—	·78	1·55	·17	1·8	·19	1·45	1·07	·37
7·0	—	2·33	·78	·66	9·0	·10	·29	·29	·67
11·6	·78	1·55	·78	·72	13·8	·39	2·04	1·75	1·04
·8	—	·78	·78	·12	·7	—	·58	·77	·13
7·8	—	—	—	·47	13·0	—	1·07	1·16	·80
27·2	—	1·55	1·55	1·21	21·9	—	1·07	·78	1·00
3·1	—	·78	1·55	·35	10·5	·49	2·13	1·94	·91
21·8	—	—	·78	·73	29·6	·08	·49	·58	1·53
68·4	—	—	—	2·38	103·4	·29	1·65	1·16	3·10
48·2	—	·78	—	6·81	43·2	—	·39	·29	4·67
1·5	—	—	—	·05	1·8	·29	·10	·10	·11
116·6	—	—	—	8·24	113·3	—	·19	·19	7·79
9·3	—	—	—	·74	8·2	·10	1·16	·68	·66
41·2	—	—	—	1·48	39·8	—	—	·10	1·57
94·9	—	—	—	3·71	77·8	—	·39	·10	2·97
3·1	·78	—	—	0·5	·4	·10	—	—	·01
—	1·55	—	—	—	·2	·10	—	—	·06
125·1	—	1·55	·78	4·71	140·2	·78	·78	·39	4·85
—	—	—	—	—	—	—	—	—	—
4·7	—	—	—	·17	4·0	·10	—	—	·08
—	—	—	—	—	—	—	—	—	—
1067·6	10·88	17·09	10·88	62·47	1121·8	9·02	19·99	13·88	62·06
1105·7	8·92	19·99	13·30	60·05	—	—	—	—	—

† The average ratios for 10 years will be given in future years.

ABSTRACT No. VII.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS the NON-EUROPEAN TROOPS stationed in the WEST INDIES during the Year 1895,

Average Strength, 1,427. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent Home.	Invalids. Number finally Discharged the Service.	Average Number constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	—	—	—	—	—	—	—
Other Eruptive Fevers	9	—	—	—	—	—	·37
Enteric Fever	3	1	—	1	—	—	·11
Other Continued Fevers	67	—	—	—	—	—	1·91
Yellow Fever	1	1	—	1	—	—	·01
Cholera	—	—	—	—	—	—	—
Dysentery	7	—	—	—	—	—	·42
Other Diseases	7	—	—	—	—	—	·40
Total	94	2	—	2	—	—	3·22
Sub-Group II.—Malarial Fevers	153	6	—	6	—	3	6·47
Sub-Group III.—Septic Diseases	—	—	—	—	—	—	—
Sub-Group IV. Syphilis, Primary	158	—	—	—	—	—	14·84
" Secondary	48	—	—	—	—	9	5·02
Gonorrhœa	233	—	—	—	—	—	15·29
Total	439	—	—	—	—	9	35·15
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	2	—	—	—	—	—	·06
Sub-Group II. Scurvy	—	—	—	—	—	—	—
Alcoholism	—	—	—	—	—	—	—
GROUP "C."							
Debility, &c.	2	—	—	—	—	1	·60
GROUP "D."							
Rheumatism	91	—	—	—	—	1	6·18
Tubercular Diseases	20	4	—	4	—	9	2·60
Other Diseases	9	—	—	—	—	3	1·51
II.—LOCAL DISEASES.							
Diseases of the— 1. Nervous System Nervous Diseases	11	—	—	—	—	3	·49
1. Nervous System Mental "	—	—	—	—	—	1	·19
2. Eye	38	—	—	—	—	1	1·99
3 & 4. Other Organs of Special Senses	7	—	—	—	—	1	·23
5. Circulatory System	13	—	—	—	—	5	1·41
6. Respiratory "	57	—	—	—	—	1	3·63
7. Digestive "	91	—	—	—	—	3	2·77
8. Lymphatic and Glandular System	48	1	—	1	—	4	6·16
9. Urinary System	1	1	—	1	—	1	·06
10. Generative "	133	—	—	—	—	2	9·75
11. Organs of Locomotion	7	—	—	—	—	1	·63
12. Connective Tissue	43	—	—	—	—	—	2·04
13. Skin	108	—	—	—	—	1	5·10
III.—POISONS	—	—	—	—	—	—	—
IV.—INJURIES.							
1. General	1	1	—	1	—	—	·03
2. Local	105	—	—	—	—	3	4·00
3. In Action	—	—	—	—	—	—	—
No appreciable disease	2	—	—	—	—	—	·03
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	1,475	15	—	15	—	53	94·30
* Average of 10 years, 1885-94	—	—	—	—	—	—	—

into Hospital, Deaths, Numbers Invalided and Constantly Sick among with the Ratios per 1,000 of the Strength, and the Average Ratios for 10 Years.*

Ratio per 1,000.					Average Ratio per 1,000 from 1886 to 1894.†				
Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
—	—	—	—	—	·1	—	—	—	·01
6·3	—	—	—	·26	13·7	—	—	—	·68
2·1	·70	—	—	·06	3·2	1·50	—	—	·30
47·0	—	—	—	1·34	107·3	·35	—	—	3·58
·7	·70	—	—	·01	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
4·9	—	—	—	·29	13·5	·35	—	·26	·76
4·9	—	—	—	·28	17·7	—	—	—	·52
65·9	1·40	—	—	2·26	155·5	2·20	—	·26	5·85
107·2	4·21	—	2·10	4·54	98·1	1·59	—	·35	3·12
—	—	—	—	—	·3	—	—	—	·02
110·7	—	—	—	10·40	99·3	—	—	—	9·11
33·7	—	—	6·31	3·52	47·2	·09	—	6·00	4·60
163·3	—	—	—	10·71	164·2	—	—	·09	10·39
307·7	—	—	6·31	24·63	310·7	·09	—	6·09	24·10
—	—	—	—	—	—	—	—	—	—
1·4	—	—	—	·04	·4	—	—	—	·01
—	—	—	—	—	·1	—	—	—	·01
—	—	—	—	—	·1	—	—	—	—
1·4	—	—	·70	·42	7·7	—	—	3·00	·63
63·8	—	—	·70	4·33	60·2	—	—	2·47	3·40
14·0	2·80	—	6·31	1·82	8·5	3·09	—	5·38	1·27
6·3	—	—	2·10	1·06	6·1	·26	—	3·17	·82
7·7	—	—	2·10	·34	10·2	·26	—	2·29	·70
—	—	—	·70	·13	1·2	—	—	1·32	·32
26·6	—	—	·70	1·40	25·6	—	—	2·20	1·85
4·9	—	—	·70	·16	5·9	·09	—	·71	·47
9·1	—	—	3·50	·90	13·2	1·15	—	4·06	1·35
39·9	—	—	·70	2·55	52·0	2·29	—	1·50	3·48
63·8	—	—	2·10	1·94	69·7	·79	—	1·68	2·17
33·7	·70	—	2·80	4·32	46·3	—	—	·88	3·98
·7	·70	—	·70	·04	3·2	·35	—	·88	·31
93·1	—	—	1·40	6·83	123·0	—	—	1·85	9·28
4·9	—	—	·70	·44	9·1	—	—	2·20	·70
30·1	—	—	—	1·43	33·8	—	—	·18	2·10
75·7	—	—	·70	3·57	83·4	—	—	·79	3·89
—	—	—	—	—	·2	—	—	—	·01
·7	·70	—	—	·02	·4	·53	—	—	—
73·6	—	—	2·10	2·80	80·0	·18	—	·07	3·55
—	—	—	—	—	—	—	—	—	—
1·4	—	—	—	·02	7·1	—	—	—	·16
—	—	—	—	—	—	—	—	—	—
1063·6	10·51	—	37·14	66·06	1212·0	12·87	—	42·32	73·88
1190·3	13·09	—	40·47	72·02	—	—	—	—	—

† The average ratios for 10 years will be given in future years.

ABSTRACT No. VIII.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS the NON-EUROPEAN TROOPS stationed at WEST AFRICA during the Year 1895,

Average Strength, 1,082. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent to West Indies.	Invalids. Number finally Discharged the Service.	Average Number constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	3	—	—	—	—	—	·09
Other Eruptive Fevers	2	—	—	—	—	—	·08
Enteric Fever	—	—	—	—	—	—	—
Other Continued Fevers	—	—	—	—	—	—	—
Yellow Fever	—	—	—	—	—	—	—
Cholera	—	—	—	—	—	—	—
Dysentery	1	—	—	—	—	—	·10
Other Diseases	3	—	—	—	—	—	·09
Total	9	—	—	—	—	—	·36
Sub-Group II.—Malarial Fevers	1,688	6	—	6	17	—	45·93
Sub-Group III.—Septic Diseases	—	—	—	—	—	—	—
Sub-Group IV. Syphilis, Primary	19	—	—	—	—	—	3·00
„ Secondary	54	—	—	—	9	—	7·00
Gonorrhœa	131	—	—	—	—	—	10·00
Total	204	—	—	—	9	—	20·00
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	—	—	—	—	—	—	—
Sub-Group II. Scurvy	—	—	—	—	—	—	—
Alcoholism	1	—	—	—	—	—	·12
GROUP "C."							
Debility, &c.	3	—	—	—	1	—	·20
GROUP "D."							
Rheumatism	60	1	—	1	6	—	4·00
Tubercular Diseases	16	3	1	4	6	—	2·47
Other Diseases	2	—	—	—	—	—	·07
II.—LOCAL DISEASES.							
Diseases of the—							
1. Nervous System Nervous Diseases	5	—	—	—	3	—	·83
Mental „	—	—	—	—	—	—	—
2. Eye	16	—	—	—	1	—	·88
3 & 4. Other Organs of Special Senses	2	—	—	—	—	—	·06
5. Circulatory System	6	—	—	—	2	—	·67
6. Respiratory „	34	—	—	—	3	—	2·42
7. Digestive „	42	—	—	—	2	—	2·01
8. Lymphatic and Glandular System	43	—	—	—	1	—	4·51
9. Urinary System	4	1	—	1	3	—	·66
10. Generative „	157	—	—	—	1	—	12·47
11. Organs of Locomotion	3	—	—	—	—	—	·06
12. Connective Tissue	40	—	1	1	2	—	2·71
13. Skin	72	—	—	—	1	—	2·28
III.—POISONS	—	—	—	—	—	—	—
IV.—INJURIES.							
1. General	—	—	—	—	—	—	—
2. Local	62	—	—	—	—	—	2·23
3. In Action	—	—	—	—	—	—	—
No appreciable disease	—	—	—	—	—	—	—
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	2,469	11	2	13	58	2	104·94
* Average of 10 years, 1885–94	—	—	—	—	—	—	—

into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK among with the Ratios per 1,000 of the Strength, and the Average Ratios for 10 Years.*

Ratio per 1,000:					Average Ratio per 1,000 from 1886 to 1894.†				
Admissions.	Deaths.	Invalids sent to West Indies.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent to West Indies.	Invalids finally Discharged.	Constantly Sick.
2·8	—	—	—	·08	—	—	—	—	—
1·8	—	—	—	·07	3·0	—	—	—	·07
—	—	—	—	—	·5	·33	—	—	·06
—	—	—	—	—	7·0	—	—	—	·13
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
·9	—	—	—	·09	20·1	·83	·50	—	1·23
2·8	—	—	—	·08	13·8	·17	—	—	·50
8·3	—	—	—	·33	44·4	1·33	·50	—	1·99
1560·1	5·55	15·71	—	42·45	859·0	7·31	1·00	·17	23·29
—	—	—	—	—	1·2	·17	—	—	·01
17·6	—	—	—	2·77	49·8	—	·17	—	4·58
49·9	—	8·32	—	6·47	48·0	—	5·31	3·16	4·60
121·1	—	—	—	9·24	138·2	—	—	—	7·82
188·6	—	8·32	—	18·48	236·0	—	5·48	3·16	17·00
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	4·5	—	—	—	·05
—	—	—	—	—	—	—	—	—	—
·9	—	—	—	·11	·8	—	—	—	·02
2·8	—	·92	—	·19	21·4	—	7·97	·33	1·50
55·5	·92	5·55	—	3·70	87·7	—	3·82	1·33	5·86
14·8	3·70	5·55	—	2·29	10·0	4·32	3·82	1·83	1·37
1·8	—	—	—	·07	3·2	·17	1·83	·83	·26
4·6	—	2·77	—	·77	13·1	·66	·83	·50	·96
—	—	—	—	—	1·8	—	·33	·33	·14
14·8	—	·92	—	·81	23·4	—	1·00	·66	1·50
1·8	—	—	—	·05	7·6	—	·66	·66	·59
5·5	—	1·85	—	·62	17·4	1·49	2·66	1·49	1·06
31·4	—	2·77	—	2·24	62·9	2·49	·33	·33	2·98
32·8	—	1·85	1·85	1·86	75·4	·83	·33	·33	2·36
39·7	—	·92	—	4·17	47·7	—	1·00	—	4·12
3·7	·92	2·77	—	·61	5·8	1·83	·50	·33	·50
145·1	—	·92	—	11·52	76·7	—	·66	·50	5·18
2·8	—	—	—	·05	12·6	·17	1·99	1·00	1·22
37·0	·92	1·85	—	2·50	38·4	—	—	—	1·98
66·6	—	·92	—	2·11	156·5	—	·83	·17	7·14
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	·3	·66	—	—	—
57·3	—	—	—	2·06	76·6	·66	·17	1·00	3·48
—	—	—	—	—	4·0	·33	·50	—	·31
—	—	—	—	—	1·3	—	—	—	·07
—	—	—	—	—	—	—	—	—	—
2261·9	12·01	53·60	1·85	96·99	1889·7	22·42	35·71	14·95	84·94
1851·8	21·88	37·25	16·45	83·35	—	—	—	—	—

† The average ratios for 10 years will be given in future years.

ABSTRACT No. IX.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS the TROOPS stationed at SOUTH AFRICA and ST. HELENA during the Year 1894,

Average Strength, 3,491. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent Home.	Invalids. Number finally discharged the Service.	Average Number constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	—	—	—	—	—	—	—
Other Eruptive Fevers	2	—	—	—	—	—	·08
Enteric Fever	32	3	—	3	—	—	4·11
Other Continued Fevers	111	—	—	—	—	—	3·82
Yellow Fever	—	—	—	—	—	—	—
Cholera	—	—	—	—	—	—	—
Dysentery	29	—	—	—	—	—	2·37
Other Diseases	62	—	—	—	—	—	1·80
Total	236	3	—	3	—	—	12·18
Sub-Group II.—Malarial Fevers	58	—	—	—	—	—	2·26
Sub-Group III.—Septic Diseases	6	—	—	—	—	—	·48
Sub-Group IV. Syphilis, Primary	294	—	—	—	1	—	28·37
„ Secondary	165	—	1	1	7	2	21·38
Gonorrhœa	517	—	—	—	1	—	45·95
Total	976	—	1	1	9	2	95·70
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	13	—	—	—	—	—	·20
Sub-Group II. Scurvy	1	—	—	—	—	—	·17
Alcoholism	12	1	—	1	—	—	·33
GROUP "C."							
Debility, &c.	30	—	—	—	5	4	2·31
GROUP "D."							
Rheumatism	113	—	—	—	2	1	6·43
Tubercular Diseases	15	3	—	3	5	4	1·98
Other Diseases	20	1	—	1	—	—	1·16
II.—LOCAL DISEASES.							
Diseases of the—							
1. Nervous System Nervous Diseases	34	—	—	—	9	8	2·81
Mental „	3	—	—	—	4	1	·25
2. Eye	37	—	—	—	—	—	1·96
3 & 4. Other Organs of Special Senses	33	—	—	—	2	3	2·49
5. Circulatory System	47	3	—	3	15	14	3·19
6. Respiratory „	98	2	—	2	2	1	5·06
7. Digestive „	447	1	—	1	—	—	12·92
8. Lymphatic and Glandular System	81	—	—	—	1	—	10·54
9. Urinary System	6	—	—	—	1	1	·48
10. Generative „	84	—	—	—	1	1	4·19
11. Organs of Locomotion	44	—	—	—	4	3	2·43
12. Connective Tissue	109	—	—	—	—	—	4·98
13. Skin	246	—	—	—	—	—	11·63
III.—POISONS	—	—	—	—	—	—	—
IV.—INJURIES.							
1. General	2	3	—	3	—	—	—
2. Local	485	3	—	3	1	1	21·08
3. In Action	—	—	—	—	—	—	—
No appreciable disease	11	—	—	—	—	—	·58
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	3,247	20	1	21	61	44	207·79
* Average of 10 years, 1885-94	—	—	—	—	—	—	—

ato Hospital, Deaths, Numbers Invalided and Constantly Sick among rith the Ratios per 1,000 of the Strength, and the average Ratios for 10 Years.*

Ratio per 1,000.					Average Ratio per 1,000 from 1886 to 1894.†				
Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
—	—	—	—	—	—	—	—	—	—
·6	—	—	—	·02	1·1	—	·03	—	·07
9·1	·86	—	—	1·18	8·8	1·75	—	—	1·36
31·8	—	—	—	1·09	37·8	·03	—	—	1·72
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
8·3	—	—	—	·68	5·8	·13	·56	·07	·55
17·8	—	—	—	·52	8·5	—	—	—	·25
67·6	·86	—	—	3·49	62·0	1·91	·60	·07	3·95
16·6	—	—	—	·65	23·7	·07	·36	·03	·87
1·7	—	—	—	·14	2·0	—	·03	—	·11
84·3	—	·29	—	8·13	87·4	—	—	—	7·17
47·3	·29	2·00	·57	6·12	56·6	·26	3·17	1·45	5·23
148·1	—	·29	—	13·16	100·3	—	·26	·07	6·98
279·7	·29	2·58	·57	27·41	244·3	·26	3·43	1·52	19·38
—	—	—	—	—	—	—	—	—	—
3·7	—	—	—	·06	2·1	—	—	·10	·04
·3	—	—	—	·05	—	—	—	—	—
3·5	·29	—	—	·09	3·5	—	·03	—	·09
8·3	—	1·43	1·15	·66	13·9	—	3·46	1·25	1·38
32·4	—	·57	·29	1·84	39·5	·10	1·55	·49	2·80
4·3	·86	1·43	1·15	·57	2·6	·56	1·35	1·12	·51
5·7	·29	—	—	·33	5·3	·10	·60	·36	·46
9·7	—	2·58	2·29	·80	7·9	·49	1·58	1·39	·70
·9	—	1·15	·29	·07	1·2	·10	·96	·92	·27
10·6	—	—	—	·56	16·0	—	·99	·82	1·10
9·5	—	·57	·86	·72	8·1	·03	·92	·79	·67
13·5	·86	4·30	4·01	·91	10·4	·30	3·43	2·31	1·38
28·1	·57	·57	·29	1·45	26·7	·60	1·22	·69	1·76
128·0	·29	—	—	3·70	94·6	·46	1·45	·92	3·37
23·2	—	·29	—	3·02	32·0	—	·13	·17	3·11
1·7	—	·29	·29	·14	3·6	·13	·60	·33	·36
24·1	—	·29	·29	1·20	46·5	—	·36	·33	3·00
12·6	—	1·15	·86	·70	8·4	·03	·73	·76	·64
31·2	—	—	—	1·43	27·8	—	·03	—	1·21
70·5	—	—	—	3·33	59·1	—	·30	·17	2·60
—	—	—	—	—	·3	·03	—	—	—
·6	·86	—	—	—	1·4	·86	·20	·03	·09
138·9	·86	·29	·29	6·03	109·0	·56	1·06	·66	4·78
—	—	—	—	—	—	—	—	·07	—
3·2	—	—	—	·17	2·0	·07	—	—	·08
—	—	—	—	—	—	—	—	—	—
930·1	6·02	17·48	12·61	59·52	853·9	6·66	25·37	15·30	54·74
857·2	6·92	27·06	16·03	54·30	—	—	—	—	—

† The average ratios for 10 years will be given in future years.

ABSTRACT No. X.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS among the TROOPS stationed at MAURITIUS during the Year 1895, with

Average Strength, 657. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent Home.	Invalids. Number finally Discharged the Service.	Average Number constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	—	—	—	—	—	—	—
Other Eruptive Fevers	—	—	—	—	—	—	—
Enteric Fever	15	6	—	6	—	—	2·30
Other Continued Fevers	—	—	—	—	—	—	—
Yellow Fever	—	—	—	—	—	—	—
Cholera	—	—	—	—	—	—	—
Dysentery	13	—	—	—	1	—	1·38
Other Diseases	—	—	—	—	—	—	—
Total	28	6	—	6	1	—	3·68
Sub-Group II.—Malarial Fevers	460	3	—	3	14	—	19·66
Sub-Group III.—Septic Diseases	—	—	—	—	—	—	—
Sub-Group IV. Syphilis, Primary	24	—	—	—	—	—	2·26
„ Secondary	27	—	—	—	2	1	3·14
Gonorrhœa	63	—	—	—	—	—	5·04
Total	114	—	—	—	2	1	10·44
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	—	—	—	—	—	—	—
Sub-Group II. Scurvy	—	—	—	—	—	—	—
Alcoholism	3	—	—	—	—	—	·05
GROUP "C."							
Debility, &c.	22	—	—	—	7	—	1·48
GROUP "D."							
Rheumatism	12	—	—	—	—	—	·70
Tubercular Diseases	4	—	—	—	3	2	·77
Other Diseases	2	—	—	—	—	—	·64
II.—LOCAL DISEASES.							
Diseases of the—							
1. Nervous System Nervous Diseases	8	1	—	1	1	1	·85
Mental „	3	—	—	—	4	6	·40
2. Eye	11	—	—	—	—	—	·56
3 & 4. Other Organs of Special Senses	24	—	—	—	3	1	1·06
5. Circulatory System	7	1	—	1	2	1	·71
6. Respiratory „	27	—	—	—	—	—	1·12
7. Digestive „	73	—	—	—	—	—	2·85
8. Lymphatic and Glandular System	7	—	—	—	—	—	1·68
9. Urinary System	3	—	—	—	—	—	·21
10. Generative „	19	—	—	—	—	—	1·21
11. Organs of Locomotion	12	—	—	—	—	—	·75
12. Connective Tissue	15	—	—	—	—	—	·78
13. Skin	71	—	—	—	—	—	2·14
III.—POISONS	—	—	—	—	—	—	—
IV.—INJURIES.							
1. General	—	—	—	—	—	—	—
2. Local	88	—	—	—	1	1	3·85
3. In Action	—	—	—	—	—	—	—
No appreciable disease	5	—	—	—	—	—	·17
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	1,018	11	—	11	38	13	55·76
* Average of 10 years, 1885-94	—	—	—	—	—	—	—

into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK among with the Ratios per 1,000 of the Strength, and the average Ratios for 10 Years.*

Ratio per 1,000.					Average Ratio per 1,000 from 1886 to 1894.†				
Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
—	—	—	—	—	—	—	—	—	—
·6	—	—	—	·02	1·1	—	·03	—	·07
9·1	·86	—	—	1·18	8·8	1·75	—	—	1·36
31·8	—	—	—	1·09	37·8	·03	—	—	1·72
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
8·3	—	—	—	·68	5·8	·13	·56	·07	·55
17·8	—	—	—	·52	8·5	—	—	—	·25
67·6	·86	—	—	3·49	62·0	1·91	·60	·07	3·95
16·6	—	—	—	·65	23·7	·07	·36	·03	·87
1·7	—	—	—	·14	2·0	—	·03	—	·11
84·3	—	·29	—	8·13	87·4	—	—	—	7·17
47·3	·29	2·00	·57	6·12	56·6	·26	3·17	1·45	5·23
148·1	—	·29	—	13·16	100·3	—	·26	·07	6·98
279·7	·29	2·58	·57	27·41	244·3	·26	3·43	1·52	19·38
—	—	—	—	—	—	—	—	—	—
3·7	—	—	—	·06	2·1	—	—	·10	·04
·3	—	—	—	·05	—	—	—	—	—
3·5	·29	—	—	·09	3·5	—	·03	—	·09
8·3	—	1·43	1·15	·66	13·9	—	3·46	1·25	1·38
32·4	—	·57	·29	1·84	39·5	·10	1·55	·49	2·80
4·3	·86	1·43	1·15	·57	2·6	·56	1·35	1·12	·54
5·7	·29	—	—	·33	5·3	·10	·60	·36	·46
9·7	—	2·58	2·29	·80	7·9	·49	1·58	1·39	·70
·9	—	1·15	·29	·07	1·2	·10	·96	·92	·27
10·6	—	—	—	·56	16·0	—	·99	·82	1·10
9·5	—	·57	·86	·72	8·1	·03	·92	·79	·67
13·5	·86	4·30	4·01	·91	10·4	·30	3·43	2·31	1·38
28·1	·57	·57	·29	1·45	26·7	·60	1·23	·69	1·76
128·0	·29	—	—	3·70	94·6	·46	1·45	·92	3·37
23·2	—	·29	—	3·02	32·0	—	·13	·17	3·11
1·7	—	·29	·29	·14	3·6	·13	·60	·33	·36
24·1	—	·29	·29	1·20	46·5	—	·36	·33	3·00
12·6	—	1·15	·86	·70	8·4	·03	·73	·76	·64
31·2	—	—	—	1·43	27·8	—	·03	—	1·21
70·5	—	—	—	3·33	59·1	—	·30	·17	2·60
—	—	—	—	—	·3	·03	—	—	—
·6	·86	—	—	—	1·4	·86	·20	·03	·09
138·9	·86	·29	·29	6·03	109·0	·56	1·06	·66	4·78
—	—	—	—	—	—	—	—	·07	—
3·2	—	—	—	·17	2·0	·07	—	—	·06
—	—	—	—	—	—	—	—	—	—
930·1	6·02	17·46	12·61	59·52	853·9	6·66	25·37	15·30	54·74
857·2	6·92	27·06	16·03	54·30	—	—	—	—	—

† The average ratios for 10 years will be given in future years.

ABSTRACT No. X.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS among the TROOPS stationed at MAURITIUS during the Year 1895, with

Average Strength, 657. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent Home.	Invalids. Number finally Discharged the Service.	Average Number constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	—	—	—	—	—	—	—
Other Eruptive Fevers	—	—	—	—	—	—	—
Enteric Fever	15	6	—	6	—	—	2·30
Other Continued Fevers	—	—	—	—	—	—	—
Yellow Fever	—	—	—	—	—	—	—
Cholera	—	—	—	—	—	—	—
Dysentery	13	—	—	—	1	—	1·38
Other Diseases	—	—	—	—	—	—	—
Total	28	6	—	6	1	—	3·68
Sub-Group II.—Malarial Fevers	460	3	—	3	14	—	19·08
Sub-Group III.—Septic Diseases	—	—	—	—	—	—	—
Sub-Group IV. Syphilis, Primary	24	—	—	—	—	—	2·26
" Secondary	27	—	—	—	2	1	3·14
Gonorrhœa	63	—	—	—	—	—	5·04
Total	114	—	—	—	2	1	10·44
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	—	—	—	—	—	—	—
Sub-Group II. Scurvy	—	—	—	—	—	—	—
Alcoholism	3	—	—	—	—	—	·05
GROUP "C."							
Debility, &c.	22	—	—	—	7	—	1·48
GROUP "D."							
Rheumatism	12	—	—	—	—	—	·70
Tubercular Diseases	4	—	—	—	3	2	·77
Other Diseases	2	—	—	—	—	—	·64
II.—LOCAL DISEASES.							
Diseases of the—							
1. Nervous System Nervous Diseases	8	1	—	1	1	1	·85
Mental "	3	—	—	—	4	6	·40
2. Eye	11	—	—	—	—	—	·36
3 & 4. Other Organs of Special Senses	24	—	—	—	3	1	1·06
5. Circulatory System	7	1	—	1	2	1	·71
6. Respiratory "	27	—	—	—	—	—	1·12
7. Digestive "	73	—	—	—	—	—	2·85
8. Lymphatic and Glandular System	7	—	—	—	—	—	1·08
9. Urinary System	3	—	—	—	—	—	·21
10. Generative "	19	—	—	—	—	—	1·21
11. Organs of Locomotion	12	—	—	—	—	—	·75
12. Connective Tissue	15	—	—	—	—	—	·78
13. Skin	71	—	—	—	—	—	2·14
III.—POISONS	—	—	—	—	—	—	—
IV.—INJURIES.							
1. General	—	—	—	—	—	—	—
2. Local	88	—	—	—	1	1	3·85
3. In Action	—	—	—	—	—	—	—
No appreciable disease	5	—	—	—	—	—	·17
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	1,015	11	—	11	38	13	53·70
* Average of 10 years, 1885-94	—	—	—	—	—	—	—

into Hospital, Deaths, Numbers Invalided and Constantly Sick the Ratios per 1,000 of the Strength, and the Average Ratios for 10 Years.*

Ratio per 1,000.					Average Ratio per 1,000, from 1886 to 1894.†				
Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
—	—	—	—	—	·2	—	—	—	·03
—	—	—	—	—	1·1	—	—	—	·08
22·8	9·13	—	—	3·50	12·6	4·41	·22	—	1·44
—	—	—	—	—	1·7	·88	·88	—	·09
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
19·8	—	1·52	—	2·10	22·5	·88	—	—	1·33
—	—	—	—	—	2·9	—	—	—	·08
42·6	9·13	1·52	—	5·60	41·0	6·18	1·10	—	3·05
700·1	4·57	21·31	—	29·92	601·8	3·31	28·02	1·54	24·96
—	—	—	—	—	1·5	·22	—	—	·05
26·5	—	—	—	3·44	43·4	—	—	—	3·32
41·1	—	3·04	1·52	4·73	29·6	—	2·43	1·32	2·49
26·9	—	—	—	7·67	104·1	—	—	—	6·60
173·5	—	3·04	1·52	15·89	177·1	—	2·43	1·32	12·41
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	3·1	—	—	·22	·07
—	—	—	—	—	·2	—	—	—	·01
4·6	—	—	—	·08	2·7	·22	—	—	·06
33·5	—	10·66	—	2·23	12·8	·22	5·06	1·77	·69
18·3	—	—	—	1·07	21·6	—	·88	·66	1·18
6·1	—	4·57	3·04	1·17	2·7	·88	1·54	1·53	·21
3·0	—	—	—	·97	6·4	—	·22	—	·26
12·1	1·52	1·52	1·52	1·29	9·7	·66	1·77	1·77	·53
4·6	—	6·09	9.13	·61	2·9	·22	1·99	1·99	·47
16·7	—	—	—	·85	12·6	—	1·99	·88	1·09
36·5	—	4·57	1·52	1·61	14·1	—	1·32	1·10	·87
10·7	1·52	3·04	1·52	1·08	16·1	·22	3·09	2·87	1·11
41·1	—	—	—	1·71	21·6	—	·66	·22	1·38
111·1	—	—	—	4·34	116·5	1·77	2·21	·44	4·28
10·7	—	—	—	2·56	50·1	—	—	·22	5·50
4·6	—	—	—	·32	5·5	·22	1·99	·88	·54
23·9	—	—	—	1·84	61·5	—	·22	·44	4·05
18·3	—	—	—	1·14	7·1	—	—	—	·47
22·8	—	—	—	1·19	20·3	—	—	—	·80
146·1	—	—	—	3·26	53·8	—	—	—	2·48
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	1·3	1·32	·22	—	·03
133·9	—	1·53	1·56	5·96	105·0	·88	·22	·22	4·27
—	—	—	—	—	—	—	—	—	—
7·6	—	—	—	·26	2·9	—	—	—	·08
—	—	—	—	—	—	—	—	—	—
1349·4	16·74	87·84	19·78	84·87	1371·9	16·32	54·93	18·09	71·00
1465·1	16·26	83·77	17·79	71·35	—	—	—	—	—

† The average ratios for 10 years will be given in future years.

ABSTRACT No. XI.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS the Troops stationed at CEYLON during the Year 1895, with the Ratios

Average Strength, 1,350. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent Home.	Invalids. Number finally Discharged the Service.	Average Number constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	—	—	—	—	—	—	—
Other Eruptive Fevers	1	—	—	—	—	—	·03
Enteric Fever	5	—	—	—	—	—	·89
Other Continued Fevers	97	—	—	—	—	—	3·20
Yellow Fever	—	—	—	—	—	—	—
Cholera	—	—	—	—	—	—	—
Dysentery	33	2	—	2	1	—	2·01
Other Diseases	—	—	—	—	—	—	—
Total	136	2	—	2	1	—	6·13
Sub-Group II.—Malarial Fevers	94	3	—	3	—	—	3·59
Sub-Group III.—Septic Diseases	1	—	—	—	—	—	·04
Sub-Group IV. Syphilis, Primary	120	—	—	—	—	—	12·12
„ Secondary	62	—	—	—	6	2	6·87
Gonorrhœa	155	—	—	—	1	1	10·13
Total	337	—	—	—	7	3	29·12
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	—	—	—	—	—	—	—
Sub-Group II. Scurvy	—	—	—	—	—	—	—
Alcoholism	18	—	—	—	—	—	·67
GROUP "C."							
Debility, &c.	39	—	—	—	1	1	1·58
GROUP "D."							
Rheumatism	38	—	—	—	3	—	2·76
Tubercular Diseases	1	—	—	—	2	3	·48
Other Diseases	16	1	—	1	—	—	·78
II.—LOCAL DISEASES.							
Diseases of the— 1. Nervous System Nervous Diseases	4	—	—	—	1	1	·25
Mental „	1	—	—	—	1	1	·39
2. Eye	19	—	—	—	—	1	·78
3 & 4. Other Organs of Special Senses	20	—	—	—	—	—	·59
5. Circulatory System	7	1	—	1	3	3	·68
6. Respiratory „	16	—	—	—	—	—	·67
7. Digestive „	146	1	—	1	1	—	4·66
8. Lymphatic and Glandular System	77	—	—	—	—	—	10·40
9. Urinary System	—	—	—	—	—	—	—
10. Generative „	82	—	—	—	—	1	6·19
11. Organs of Locomotion	13	—	—	—	—	—	·99
12 Connective Tissue	60	—	—	—	—	—	1·95
13. Skin	98	—	—	—	—	—	4·18
III.—POISONS	—	—	—	—	—	—	—
IV.—INJURIES.							
1. General	1	2	—	2	—	—	·08
2. Local	127	1	—	1	2	—	5·87
3. In Action	—	—	—	—	—	—	—
No appreciable disease	8	—	—	—	—	—	·23
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	1,339	11	—	11	22	14	82·97
* Average of 10 years 1885-94	—	—	—	—	—	—	—

into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK among per 1,000 of the Strength, and the Average Ratios for 10 Years.*

Ratio per 1,000.					Average Ratio per 1,000 from 1886 to 1894.†				
Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
—	—	—	—	—	—	—	—	—	·01
·7	—	—	—	·02	·3	—	—	—	·01
3·7	—	—	—	·66	8·6	3·37	—	—	·97
71·9	—	—	—	2·37	64·7	·19	—	—	2·10
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	·1	·09	—	—	—
24·4	1·48	·74	—	1·49	20·0	·84	1·50	·23	1·61
—	—	—	—	—	3·5	—	—	—	·06
100·7	1·48	·74	—	4·54	97·2	4·49	1·50	·23	4·76
69·6	2·22	—	—	2·06	36·7	·19	·28	—	1·21
·7	—	—	—	·03	·6	—	—	—	·01
83·9	—	—	—	8·98	69·0	—	·09	—	5·72
45·9	—	4.44	1·48	5·09	55·6	—	2·24	1·87	4·52
114·8	—	·74	·74	7·50	134·2	—	·19	·09	7·40
249·6	—	5·19	2·22	21·57	258·8	—	2·52	1·96	17·64
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	1·5	—	—	—	·02
—	—	—	—	—	—	—	—	—	—
13·3	—	—	—	·50	4·1	·19	—	—	·14
28·9	—	·74	·74	1·17	15·2	—	2·90	1·40	·93
28·2	—	2·22	—	2·04	31·4	—	—	—	1·58
·7	—	1·48	2·22	·36	3·6	1·03	2·24	1·96	·62
11·9	·74	—	—	·58	11·0	—	·65	·38	·70
3·9	—	·74	·74	·19	9·8	·47	1·59	1·03	·58
·7	—	·74	·74	·22	1·4	—	1·31	1·22	·32
14·1	—	—	·74	·58	13·0	—	·75	·56	·72
14·8	—	—	—	·44	15·7	—	·28	·28	·61
5·2	·74	2·22	2·22	·50	8·8	1·21	1·40	·75	·77
11·9	—	—	—	·50	26·6	·65	·94	·47	1·51
108·2	·74	·74	—	3·45	102·6	1·68	1·50	·38	3·76
57·1	—	—	—	7·70	62·7	—	·28	—	6·53
—	—	—	—	—	2·8	—	·28	·28	·23
60·8	—	—	·74	4·58	98·8	—	·47	—	6·25
9·6	—	—	—	·73	6·3	—	·65	·56	·48
44·4	—	—	—	1·44	24·7	—	—	—	1·02
72·6	—	—	—	3·10	69·8	—	—	—	2 93
—	—	—	—	—	—	—	—	—	—
·7	1·48	—	—	·03	1·9	1·50	·19	·09	·12
94·1	·74	1·48	—	4·35	94·3	·37	·28	·37	3·65
—	—	—	—	—	—	—	—	—	—
5·9	—	—	—	·17	4·4	—	—	—	·07
—	—	—	—	—	—	—	—	—	—
1006·7	8·15	16·30	10·37	61·41	1003·7	11·78	20·01	11·97	57·36
1015·7	11·65	20·69	12·52	87·39	—	—	—	—	—

† The average ratios for 10 [illegible] nature years.

ABSTRACT No. XII.—TABLE showing the AVERAGE STRENGTH, ADMISSIONS among the TROOPS stationed in CHINA during the Year 1895, with the

Average Strength, 1,515. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent Home.	Invalids. Number finally Discharged the Service.	Average Number constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	—	—	—	—	—	—	—
Other Eruptive Fevers	1	—	—	—	—	—	·02
Enteric Fever	5	2	—	2	—	—	·25
Other Continued Fevers	11	—	—	—	—	—	·30
Yellow Fever	—	—	—	—	—	—	—
Cholera	3	2	—	2	—	—	·02
Dysentery	16	1	—	1	2	—	1·05
Other Diseases	39	—	—	—	—	—	1·41
Total	74	5	—	5	2	—	3·03
Sub-Group II.—Malarial Fevers	719	6	—	6	22	—	24·85
Sub-Group III.—Septic Diseases	2	—	—	—	—	—	·09
Sub-Group IV. Syphilis, Primary	67	—	—	—	—	—	5·93
„ Secondary	96	—	—	—	2	3	6·54
Gonorrhœa	292	—	—	—	—	—	22·50
Total	455	—	—	—	2	3	34·97
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	—	—	—	—	—	—	—
Sub-Group II. Scurvy	—	—	—	—	—	—	—
Alcoholism	6	—	—	—	—	—	·20
GROUP "C."							
Debility, &c.	33	—	—	—	22	5	1·44
GROUP "D."							
Rheumatism	21	—	—	—	1	—	1·03
Tubercular Diseases	11	1	—	1	6	1	1·78
Other Diseases	17	—	—	—	3	—	·97
II.—LOCAL DISEASES.							
Diseases of the—							
1. Nervous System (Nervous Diseases)	4	1	—	1	—	2	·21
1. Nervous System (Mental „)	—	—	—	—	—	1	—
2. Eye	9	—	—	—	2	1	·44
3 & 4. Other Organs of Special Senses	46	—	—	—	3	—	1·65
5. Circulatory System	7	1	—	1	5	3	·33
6. Respiratory „	29	—	—	—	1	1	1·77
7. Digestive „	146	2	—	2	7	2	5·20
8. Lymphatic and Glandular System	47	—	—	—	—	2	5·81
9. Urinary System	1	—	—	—	1	1	·45
10. Generative „	190	—	—	—	—	—	15·53
11. Organs of Locomotion	17	—	—	—	3	2	1·33
12. Connective Tissue	24	—	—	—	—	—	1·03
13. Skin	93	—	—	—	—	—	3·85
III.—POISONS	—	—	—	—	—	—	—
IV.—INJURIES.							
1. General	3	4	—	4	—	—	·04
2. Local	139	—	—	—	1	—	5·10
3. In Action	—	—	—	—	—	—	—
No appreciable disease	3	—	—	—	—	—	·08
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	2,096	20	—	20	81	24	111·18
* Average of 10 years, 1885-94	—	—	—	—	—	—	—

into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK Ratios per 1,000 of the Strength, and the Average Ratios for 10 years.*

Ratio per 1,000.					Average Ratio per 1,000 from 1886 to 1894.†				
Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
—	—	—	—	—	1·3	—	—	—	·00
—	—	—	—	—	·1	—	—	—	·01
3·3	1·32	—	—	·17	1·1	·42	·08	—	·12
7·3	—	—	—	·20	10·7	—	—	—	·36
—	—	—	—	—	—	—	—	—	—
2·0	1·32	—	—	·01	·3	·25	—	—	—
10·6	·66	1·32	—	·69	14·2	·42	·75	—	·77
25·7	—	—	—	·93	1·4	·08	—	—	·14
48·9	3·30	1·32	—	2·00	29·1	1·17	·84	—	1·49
474·6	3·96	14·52	—	16·40	457·7	2·51	4·69	·92	12·58
1·3	—	—	—	·06	·3	—	—	—	·01
44·2	—	—	—	3·91	36·3	—	—	—	3·45
63·4	—	1·32	1·98	4·32	47·1	·17	2·43	·67	3·42
192·7	—	—	—	14·85	128·3	—	·25	—	8·29
300·3	—	1·32	1·98	23·08	211·7	·17	2·68	·67	15·16
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	·9	—	—	—	·02
—	—	—	—	—	—	·08	—	—	—
4·0	—	—	—	·13	3·6	·17	·08	—	·18
21·8	—	14·52	3·30	·95	20·8	·08	2·43	1·26	·98
13·9	—	·66	—	1·68	18·5	—	·75	·25	·91
7·3	·66	3·96	·66	1·18	4·4	1·01	2·26	1·09	·78
11·2	—	1·98	—	·64	7·0	·25	·59	·25	·55
2·6	·66	—	1·32	·14	5·3	·42	·59	·50	·36
—	—	—	·66	—	1·4	·08	·75	·67	·25
5·9	—	1·32	·66	·20	8·5	—	·50	·25	·48
30·4	—	1·98	—	1·00	11·4	—	·34	·34	·43
4·6	·66	3·30	1·98	·22	13·8	1·09	3·01	2·43	1·06
19·1	—	·63	·66	1·17	28·6	·42	1·17	·59	1·53
96·4	1·32	4·62	1·32	3·43	93·3	·59	1·93	·67	3·77
31·0	—	—	1·32	3·83	24·4	—	·34	·17	2·23
·7	—	·66	·66	·30	3·9	·25	·42	·08	·39
125·4	—	—	—	10·25	123·3	·08	·08	·08	9·23
11·2	—	1·98	1·32	·88	9·0	—	·92	·50	·61
15·8	—	—	—	·68	25·3	—	·25	·08	1·15
61·4	—	—	—	2·54	49·8	—	·17	—	1·98
—	—	—	—	—	·3	—	—	—	·10
2·0	2·64	—	—	·03	1·5	1·03	—	—	—
91·7	—	·66	—	3·37	85·3	1·17	·75	·75	3·61
—	—	—	—	—	—	—	—	—	—
2·0	—	—	—	·05	·7	—	—	—	·03
—	—	—	—	—	—	—	—	—	—
1383·5	13·20	53·46	15·84	73·39	1239·8	11·22	23·54	11·55	59·87
1209·6	11·64	26·65	—	57·97	—	—	—	—	—

† The average ratios for 10 years will be given in future years.

ABSTRACT No. XIII.—TABLE showing the AVERAGE STRENGTH, ADMIS- among the TROOPS stationed in the STRAITS SETTLEMENTS during Ratios for 10 years.*

Average Strength, 1,368. Diseases.	Admissions into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids. Number sent Home.	Invalids. Number finally Discharged the Service.	Average Number constantly Sick.
I.—GENERAL DISEASES.							
GROUP "A."							
Sub-Group I. Small-pox	—	—	—	—	—	—	—
Sub-Group I. Other Eruptive Fevers	—	—	—	—	—	—	—
Sub-Group I. Enteric Fever	1	1	—	1	—	—	·04
Sub-Group I. Other Continued Fevers	72	—	—	—	—	—	2·18
Sub-Group I. Yellow Fever	—	—	—	—	—	—	—
Sub-Group I. Cholera	—	—	—	—	—	—	—
Sub-Group I. Dysentery	6	—	—	—	—	—	·43
Sub-Group I. Other Diseases	8	—	—	—	—	—	·32
Total	87	1	—	1	—	—	2·97
Sub-Group II.—Malarial Fevers	64	3	—	3	1	—	1·66
Sub-Group III.—Septic Diseases	2	—	—	—	—	—	·06
Sub-Group IV. Syphilis, Primary	330	—	—	—	—	—	23·82
Sub-Group IV. " Secondary	190	1	1	2	4	2	14·49
Sub-Group IV. Gonorrhœa	287	—	—	—	1	1	16·05
Total	807	1	1	2	5	3	59·36
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—
GROUP "B."							
Sub-Group I.—Parasitic Diseases	2	—	—	—	—	—	·01
Sub-Group II. Scurvy	—	—	—	—	—	—	—
Sub-Group II. Alcoholism	6	—	—	—	—	—	·32
GROUP "C."							
Debility, &c.	4	—	—	—	—	1	·15
GROUP "D."							
Rheumatism	17	—	—	—	2	—	1·92
Tubercular Diseases	6	—	1	1	7	3	1·75
Other Diseases	5	—	—	—	—	—	·35
II.—LOCAL DISEASES.							
Diseases of the— 1. Nervous System Nervous Diseases	3	—	—	—	—	—	·14
1. Nervous System Mental "	—	—	—	—	—	2	—
2. Eye	10	—	—	—	—	—	·92
3 & 4. Other Organs of Special Senses	19	—	—	—	—	—	·76
5. Circulatory System	3	1	—	1	—	1	·32
6. Respiratory "	17	1	—	1	—	—	1·23
7. Digestive "	45	1	—	1	1	—	1·68
8. Lymphatic and Glandular System	63	—	—	—	—	—	6·72
9. Urinary System	7	1	—	1	1	—	·61
10. Generative "	67	—	—	—	—	—	4·37
11. Organs of Locomotion	5	—	—	—	—	—	·34
12. Connective Tissue	39	—	—	—	—	—	1·97
13. Skin	66	—	—	—	—	—	3·84
III.—POISONS	—	—	—	—	—	—	—
IV.—INJURIES.							
1. General	3	—	—	—	—	—	·13
2. Local	113	—	—	—	1	—	5·11
3. In Action	—	—	—	—	—	—	—
No appreciable disease	9	—	—	—	—	—	·29
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—
General Total	1,469	9	2	11	18	10	96·98
* Average of 10 years, 1885-94	—	—	—	—	—	—	—

SIONS into HOSPITAL, DEATHS, NUMBERS INVALIDED and CONSTANTLY SICK the Year 1895, with the Ratios per 1,000 of the Strength, and the Average

Ratio per 1,000.					Average Ratio per 1,000 from 1886 to 1894.†				
Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged.	Constantly Sick.
—	—	—	—	—	·2	—	—	—	·02
—	—	—	—	—	·2	—	—	—	·01
·7	·73	—	—	·03	2·8	1·13	—	—	·42
52.6	—	—	—	1·59	70·9	·09	·09	—	2·45
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	·09	—	—	—
4·4	—	—	—	·32	7·8	·19	·76	·09	·85
5·9	—	—	—	·23	·2	—	—	—	—
63·6	·73	—	—	2·17	82·1	1·51	·85	·09	3·75
46·8	2·19	·73	—	1·21	114·4	·09	·09	—	3·49
1·5	—	—	—	·04	—	—	—	—	—
241·2	—	—	—	21·07	94·4	—	—	—	8·50
138·9	1·46	2·92	1·46	10·59	93·8	·09	4·91	1·04	10·13
209·8	—	·73	·73	11·73	144·1	—	·47	·09	10·50
589·9	1·46	3·65	2·19	43·39	332·3	·09	5·38	1·13	29·13
—	—	—	—	—	·1	0·9	—	—	—
1·5	—	—	—	·01	3·2	—	—	—	·06
—	—	—	—	—	—	—	—	—	—
4·4	—	—	—	·23	7·5	·38	—	—	·30
2·9	—	—	·73	·11	16·9	—	1·98	1·51	1·82
12·4	—	1·46	—	1·40	12·5	—	·28	·19	·94
4·4	·73	5·12	2·19	1·28	5·2	·94	1·32	·76	·61
3·7	—	—	—	·26	7·6	·19	·09	—	·48
2·2	—	—	—	·10	6·3	·57	·38	·38	·33
—	—	—	1·46	—	1·7	·09	1·42	1·23	·37
7·3	—	—	—	·67	19·3	—	·47	·28	·99
13·9	—	—	—	·56	14·5	—	·09	·09	·53
2·2	·73	—	·73	·23	5·2	·28	1·61	1·70	·78
12·4	·73	—	—	·90	22·7	·85	1·23	·38	1·63
32·9	·73	·73	—	1·23	73·6	·38	·66	·38	3·00
46·0	—	—	—	4·91	38·9	—	·09	·09	4·77
5·1	·73	·73	—	·45	2·2	·09	·28	·28	·35
49·0	—	—	—	3·19	102·9	·09	·57	·76	7·16
3·6	—	—	—	·25	8·1	—	·38	·47	·53
28·5	—	—	—	1·44	33·1	—	·09	—	1·41
46·2	—	—	—	2·81	72·2	—	—	·09	3·18
—	—	—	—	—	·2	—	—	—	—
2·2	—	—	—	·10	2·5	1·23	—	—	·17
82·6	—	·73	—	3·74	95·4	·28	·57	·47	4·05
—	—	—	—	—	—	—	—	—	—
6·6	—	—	—	·21	2·5	—	—	—	·08
—	—	—	—	—	—	—	—	—	—
1073·8	8·04	13·16	7·31	70·89	1080·1	7·17	17·83	10·28	69·99
1106·4	7·11	20·06	—	68·07	—	—	—	—	—

† The average ratios for 10 years will be given in future years.

ABSTRACT No. XIV.—TABLE showing the AVERAGE STRENGTH, ADMISSICK, among the Troops stationed in INDIA during the Year 1895, with

Average Strength 68,331. Diseases.	Admissions into Hospital.	Deaths			Invalids.	
		In the Command.	Of Invalids.	Total.	No. sent Home.	No. finally discharged the Service.
I.—GENERAL DISEASES.						
GROUP "A."						
Sub-Group I. Small-pox	19	2	—	2	—	—
Other Eruptive Fevers	38	—	—	—	—	—
Enteric Fever	1,544	383	—	383	33	4
Other Continued Fevers	1,427	3	—	3	—	—
Yellow Fever	—	—	—	—	—	—
Cholera	44	32	—	32	—	—
Dysentery	1,956	54	2	56	49	13
Other Diseases	579	2	—	2	2	1
Total	5,607	476	2	478	84	18
Sub-Group II.—Malarial Fevers	23,380	37	2	39	220	40
Sub-Group III.—Septic Diseases	77	6	1	7	—	—
Sub-Group IV. Syphilis, Primary	12,208	—	—	—	5	—
„ Secondary	5,929	15	—	15	321	119
Gonorrhœa	13,979	—	—	—	22	11
Total	32,116	15	—	15	348	130
Sub-Group V.—Hydrophobia, &c.	3	3	—	3	—	—
GROUP "B."						
Sub-Group I.—Parasitic Diseases	171	—	—	—	1	1
Sub-Group II. Scurvy	54	—	—	—	—	—
Alcoholism	267	8	—	8	—	—
GROUP "C."						
Debility, &c.	1,237	—	3	3	170	48
GROUP "D."						
Rheumatism	1,887	3	—	3	57	23
Tubercular Diseases	323	36	15	51	87	71
Other Diseases	534	5	1	6	64	17
II.—LOCAL DISEASES.						
Diseases of the—						
1. Nervous System Nervous Diseases	479	25	—	25	56	41
Mental „	63	1	—	1	55	73
2. Eye	762	—	—	—	31	31
3 & 4. Other Organs of Special Senses	948	1	—	1	37	38
5. Circulatory System	637	25	1	26	137	121
6. Respiratory „	2,296	40	5	45	29	16
7. Digestive „	7,765	119	3	122	107	40
8. Lymphatic and Glandular System	2,033	1	—	1	23	15
9. Urinary System	133	12	3	15	22	13
10. Generative „	5,314	1	—	1	10	8
11. Organs of Locomotion	602	1	—	1	41	32
12. Connective Tissue	1,672	—	—	—	11	—
13. Skin	4,422	1	—	1	3	2
III.—POISONS	28	7	—	7	2	—
IV.—INJURIES.						
1. General	266	92	—	92	7	3
2. Local	6,547	27	—	27	61	41
3. In Action	—	—	—	—	—	—
No appreciable disease	143	—	—	—	—	—
Cause unknown (refers to deaths only)	—	—	—	—	—	—
General Total	99,766	942	36	978	1,663	821
* Average of 10 years, 1885-94	—	—	—	—	—	—

SIONS into HOSPITAL, DEATHS, NUMBERS INVALIDED, and CONSTANTLY the Ratios per 1,000 of the Strength, and the average Ratios for 10 Years.*

Average Number constantly Sick.	Ratio per 1,000.					Average Ratio per 1,000 from 1886 to 1894.†				
	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged	Constantly Sick.	Admissions.	Deaths.	Invalids sent Home.	Invalids finally Discharged	Constantly Sick.
1·43	·3	·03	—	—	·02	·7	·07	—	—	·07
1·67	·6	—	—	—	·02	1·8	·01	—	—	·06
219·77	22·6	5·61	·48	·06	3·22	18·8	5·11	·22	·01	2·64
69·99	20·9	·04	—	—	1·02	60·2	·04	·03	·01	2·38
—	—	—	—	—	—	—	—	—	—	—
1·05	·6	·47	—	—	·02	2·0	1·42	—	—	·05
131·67	28·6	·82	·72	·19	1·93	28·8	·70	1·07	·19	1·98
16·47	8·5	·03	·03	·01	·24	6·8	·02	—	—	·20
442·05	82·1	7·00	1·23	·26	6·47	119·1	7·38	1·32	·20	7·39
857·78	342·2	·57	3·22	·59	12·55	361·9	·74	1·75	·33	11·43
4·29	1·1	·10	—	—	·06	1·6	·09	—	—	·10
1115·18	178·7	—	·07	—	16·32	116·7	—	·01	—	9·65
603·79	86·8	·22	4·70	1·74	8·84	52·3	·10	2·58	·90	5·20
1070·92	204·6	—	·32	·16	15·67	169·5	—	·13	·03	12·10
2789·89	470·0	·22	5·09	1·90	40·83	338·5	·10	2·72	·93	26·95
·01	—	·04	—	—	—	—	·04	—	—	—
4·68	2·5	—	·01	·01	·07	3·5	—	·01	—	·09
2·83	·8	—	—	—	·04	·7	—	·01	—	·03
9·17	3·9	·12	—	—	·14	8·9	·07	·01	—	·28
82·87	18·1	·04	2·49	·70	1·21	24·8	·04	3·36	1·53	1·62
131·05	27·6	·04	·83	·34	1·92	30·0	·07	·97	·36	2·06
48·82	4·7	·75	1·27	1·04	·72	3·3	·83	1·39	1·03	·65
44·30	7·8	·09	·94	·25	·65	11·0	·15	·61	·21	·73
32·68	7·0	·37	·82	·60	·48	9·0	·37	1·09	·83	·61
19·21	·9	·01	·80	1·05	·28	1·8	·01	1·25	1·37	·52
48·07	11·2	—	·45	·45	·71	13·3	—	·58	·56	·81
51·37	13·9	·01	·54	·56	·75	14·9	·01	·87	·67	·75
60·27	9·3	·38	2·00	1·77	·88	10·9	·38	2·79	2·23	1·11
118·34	33·6	·66	·42	·23	1·73	34·3	·98	·70	·35	1·95
330·35	113·6	1·79	1·57	·59	4·83	133·6	1·82	2·04	·64	5·61
238·74	29·8	·01	·34	·22	3·49	32·1	·03	·41	·17	3·48
13·72	1·9	·21	·32	·19	·20	2·1	·16	·30	·18	·21
418·20	77·8	·01	·15	·12	6·12	88·3	·02	·29	·22	5·98
48·78	8·8	·01	·60	·47	·72	7·4	·03	·72	·58	·57
82·97	24·5	—	·16	—	1·21	21·3	·01	·10	·03	1·01
194·60	64·7	·01	·04	·03	2·85	69·3	·00	·16	·05	2·86
·93	·4	·10	·03	—	·01	·5	·09	·01	—	·02
14·08	3·9	1·35	·10	·04	·21	3·2	1·44	·11	·03	·17
298·81	95·8	·40	·89	·60	4·37	105·2	·79	·93	·65	4·62
—	—	—	—	—	—	·1	·03	·02	·06	·01
7·49	2·1	—	—	—	·11	2·1	—	—	—	·09
—	—	—	—	—	—	—	—	—	—	—
6396·35	1460·0	14·31	24·34	12·01	93·61	1452·7	15·66	24·52	13·21	81·71
—	1458·7	15·62	24·38	13·23	80·76	—	—	—	—	—

† The average ratios for 10 years will be given in future years.

ABSTRACT No. XV.—TABLE, taken from the REPORT of the PRINCIPAL CLASSES of DISEASES in each of the MILITARY DISTRICTS in INDIA,

Military Districts.	Presidency.		Allahabad.		Oudh.		Rohilkhand.		Narbudda.	
Average Strength	2,728		2,486		4,582		3,362		1,323	
Diseases.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
I.—GENERAL DISEASES.										
GROUP "A."										
Sub-Group I. Small-pox	—	—	—	—	—	—	—	—	5	1
Other Eruptive Fevers	—	—	—	—	—	—	—	—	—	—
Enteric Fever	30	15	90	10	177	42	100	18	32	10
Other Continued Fevers	37	—	135	—	134	—	70	—	19	—
Yellow Fever	—	—	—	—	—	—	—	—	—	—
Cholera	2	2	3	3	19	12	2	2	—	—
Dysentery	226	15	117	3	133	2	55	3	46	3
Other diseases	10	—	4	—	—	—	44	—	—	—
Total	305	32	349	16	463	56	271	23	102	14
Sub-Group II.—Malarial Fevers	974	2	460	—	789	1	449	—	688	2
Sub-Group III.—Septic Diseases	1	1	2	—	3	1	9	1	1	—
Sub-Group IV. Syphilis, Primary	407	—	490	—	1,399	—	1,017	—	146	—
" Secondary	217	3	198	1	445	—	537	1	126	—
Gonorrhœa	599	—	752	—	1,087	—	852	—	384	—
Total	1,223	3	1,440	1	2,931	—	2,406	1	656	—
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—	—	1	1
GROUP "B."										
Sub-Group I.—Parasitic Diseases	—	—	1	—	14	—	2	—	—	—
Sub-Group II. Scurvy	—	—	—	—	3	—	—	—	1	—
Alcoholism	27	—	9	—	17	1	11	—	5	1
GROUP "C."										
Debility, &c.	97	—	30	—	93	—	64	—	25	—
GROUP "D."										
Rheumatism	64	—	65	—	134	—	62	—	20	—
Tubercular Diseases	8	2	16	3	9	2	18	1	8	4
Other diseases	10	—	15	—	33	—	29	—	10	—
II.—LOCAL DISEASES.										
Diseases of the—										
1. Nervous System Nervous Diseases	16	—	23	2	36	1	15	—	6	—
Mental "	1	—	4	—	5	—	2	—	4	—
2. Eye	16	—	31	—	49	—	40	—	24	—
3 & 4. Other Organs of Special Senses	20	—	33	—	57	—	38	—	18	—
5. Circulatory System	10	1	29	—	35	2	42	2	9	—
6. Respiratory "	31	1	57	1	90	—	87	1	19	—
7. Digestive "	271	6	244	4	496	11	373	6	130	4
8. Lymphatic and Glandular System	137	1	55	—	164	—	115	—	40	—
9. Urinary System	4	—	5	—	8	2	5	1	2	—
10. Generative "	285	—	341	—	50	—	51	—	110	—
11. Organs of Locomotion	29	—	36	—	39	1	33	—	14	—
12. Connective Tissue	48	—	53	—	115	—	52	—	43	—
13. Skin	152	—	199	—	426	—	234	—	76	—
III.—POISONS	1	1	—	—	2	—	—	1	2	1
IV.—INJURIES.										
1. General	7	3	14	8	10	4	7	4	5	4
2. Local	181	—	171	1	418	2	250	1	164	1
3. In Action	—	—	—	—	—	—	—	—	—	—
No appreciable disease	5	—	6	—	4	—	12	—	5	—
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—	—	—	—
General Total	3,923	53	3,688	36	6,493	84	4,677	42	2,188	32

MEDICAL OFFICER, showing the PREVALENCE and MORTALITY of the DIFFERENT with the ratios per 1,000 of Strength, during the year 1895.

Bundelkhand.		Meerut.		Sirhind.		Lahore.		Rawal Pindi.		Peshawar.		Madras.		Southern. District.		Bangalore.	
2,505		4,567		4,141		4,542		3,622		2,295		1,369		1,304		2,469	
Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
—	—	1	—	—	—	1	—	3	—	—	—	—	—	—	—	4	1
—	—	—	—	—	—	5	—	1	—	1	—	1	—	—	—	1	—
71	26	164	48	167	24	76	22	91	30	96	31	11	2	26	6	28	3
173	—	9	—	65	—	42	—	53	—	3	—	33	—	21	—	56	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—
68	1	136	6	89	1	117	4	81	1	40	1	67	—	30	—	108	—
—	—	26	—	17	—	39	1	111	1	15	—	41	—	5	—	79	—
312	27	336	54	339	25	281	27	340	32	157	32	173	2	102	6	276	4
630	—	1,837	1	838	1	3,852	6	1,735	8	1,262	3	158	—	197	—	254	—
3	—	—	—	3	—	7	—	12	—	2	—	—	—	2	—	—	—
472	—	529	—	524	—	632	—	1,546	—	161	—	187	—	214	—	501	—
221	—	240	2	368	—	342	1	342	2	171	—	139	1	184	—	299	—
784	—	832	—	879	—	953	—	914	—	322	—	190	—	332	—	326	—
1,477	—	1,601	2	1,771	—	1,927	1	2,302	2	654	—	507	1	733	—	1,125	—
—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—
5	—	7	—	31	—	11	—	21	—	5	—	5	—	7	—	5	—
—	—	3	—	4	—	2	—	1	—	—	—	—	—	—	—	—	—
16	1	8	—	29	—	19	—	15	—	2	—	6	—	9	1	6	—
57	—	62	—	100	—	125	—	73	—	41	—	9	—	9	—	37	—
60	—	100	—	110	—	180	1	158	—	46	—	42	—	44	—	45	—
14	—	19	4	7	2	14	6	3	—	5	1	38	—	29	—	6	—
19	—	6	—	40	—	24	2	22	—	7	—	13	1	31	—	17	—
14	—	46	2	38	2	43	2	31	1	8	1	10	—	4	—	17	1
3	—	4	—	4	—	3	—	5	—	—	—	3	—	2	—	1	—
36	—	61	—	48	—	49	—	40	—	20	—	6	—	11	—	28	—
50	—	85	—	48	—	90	—	83	1	26	—	20	—	12	—	14	—
33	—	36	1	55	3	84	1	57	2	23	—	8	1	3	1	9	2
84	1	130	2	94	2	247	2	359	8	233	9	24	1	38	—	51	—
314	4	544	9	535	4	712	1	574	8	204	8	97	8	167	3	193	2
86	—	122	—	100	—	132	—	91	—	27	—	31	—	35	—	89	—
4	—	9	1	7	—	10	1	7	1	7	1	3	—	1	—	6	—
284	—	537	—	308	—	462	—	48	—	215	—	36	—	75	—	71	—
18	—	45	—	28	—	35	—	42	—	17	—	10	—	10	—	20	—
38	—	109	—	117	—	88	—	173	—	54	—	18	—	36	—	63	—
185	—	286	—	283	1	328	—	275	—	115	—	77	—	83	—	124	—
—	—	6	1	1	—	3	—	1	1	—	—	—	—	2	1	4	—
7	5	9	5	6	1	42	8	38	8	25	14	5	2	1	—	1	1
233	2	352	3	346	1	449	—	621	4	134	—	78	1	190	1	283	1
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
11	—	5	—	17	—	11	—	22	—	2	—	1	—	3	—	5	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4,002	40	6,365	85	5,587	42	9,230	60	7,331	76	3,291	69	1,381	18	1,856	13	2,750	11

ABSTRACT No. XV.—TABLE, taken from the REPORT of the PRINCIPAL CLASSES of DISEASES in each of the MILITARY DISTRICTS in INDIA,

Military Districts.	Belgaum.		Secunderabad.		Rangoon.		Mandalay.		Poona.	
Average Strength	997		2,764		2,161		1,884		3,873	
Diseases.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
I.—GENERAL DISEASES.										
GROUP "A."										
Sub-Group I. Small-pox	2	—	—	—	—	—	—	—	—	—
Other Eruptive Fevers	—	—	—	—	2	—	—	—	1	—
Enteric Fever	4	—	78	15	17	8	7	1	84	22
Other Continued Fevers	8	—	—	—	117	—	62	—	29	—
Yellow Fever	—	—	—	—	—	—	—	—	—	—
Cholera	—	—	7	4	—	—	4	4	1	1
Dysentery	13	—	149	1	79	5	58	1	97	1
Other Diseases	—	—	2	—	157	—	2	—	1	—
Total	27	—	236	20	372	13	133	6	213	24
Sub-Group II.—Malarial Fevers	70	—	394	—	317	1	314	3	1,342	2
Sub-Group III.—Septic Diseases	—	—	—	—	1	—	—	—	2	1
Sub-Group IV. Syphilis, Primary	286	—	733	—	510	—	534	—	643	—
" Secondary	134	—	267	1	196	—	176	—	384	—
Gonorrhœa	185	—	541	—	449	—	390	—	911	—
Total	605	—	1,541	1	1,155	—	1,100	—	1,938	—
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—	—	—	—
GROUP "B."										
Sub-Group I.—Parasitic Diseases	7	—	—	—	3	—	5	—	3	—
Sub-Group II. Scurvy	—	—	—	—	—	—	2	—	—	—
Alcoholism	5	—	13	—	13	—	2	1	7	1
GROUP "C."										
Debility, &c.	4	—	11	—	50	—	9	—	66	—
GROUP "D."										
Rheumatism	35	—	76	1	59	—	74	—	76	—
Tubercular Diseases	1	1	46	—	6	—	2	1	8	—
Other Diseases	3	—	52	2	39	—	8	—	25	—
II.—LOCAL DISEASES.										
Diseases of the—										
1. Nervous System { Nervous Diseases	7	—	11	1	20	2	7	—	17	2
{ Mental "	—	—	2	—	3	—	—	—	7	1
2. Eye	10	—	44	—	15	—	40	—	37	—
3 & 4. Other Organs of Special Senses	7	—	19	—	38	—	34	—	32	—
5. Circulatory System	—	—	14	1	7	—	15	—	13	1
6. Respiratory "	12	—	104	1	40	—	50	1	54	—
7. Digestive "	91	—	332	2	193	3	237	2	337	8
8. Lymphatic and Glandular System	39	—	148	—	52	—	63	—	118	—
9. Urinary System	1	—	4	1	5	—	2	—	9	—
10. Generative "	6	—	27	1	139	—	121	—	686	—
11. Organs of Locomotion	7	—	13	—	23	—	17	—	46	—
12. Connective Tissues	29	—	91	—	59	—	61	—	72	—
13. Skin	30	—	124	—	142	—	193	—	141	—
III.—POISONS	—	—	—	—	1	—	1	—	1	—
IV.—INJURIES.										
1. General	2	1	1	1	3	4	2	1	2	1
2. Local	88	—	304	1	213	—	219	—	271	1
3. In Action	—	—	—	—	—	—	—	—	—	—
No appreciable disease	3	—	3	—	5	—	6	—	3	—
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—	—	—	—
General Total	1,089	2	3,610	33	2,986	23	2,717	15	5,526	42

MEDICAL OFFICER, showing the PREVALENCE and MORTALITY of the DIFFERENT with the ratios per 1,000 of Strength, during the year 1895—*continued*.

Mhow.		Bombay.		Deesa.		Aden.		Sind.		Nagpur.		Quetta.		Marching.		Total.	
3,293		1,853		639		1,038		1,522		973		2,354		1,377		68,331	
Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
1	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	19	2
1	—	20	—	1	—	—	—	—	—	—	—	4	—	—	—	38	—
63	17	22	8	27	6	5	4	7	3	17	4	28	6	24	2	1,544	383
16	—	22	—	93	—	105	3	4	—	6	—	8	—	13	—	1,427	3
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	44	32
43	—	46	1	9	—	9	—	27	—	24	1	20	4	49	—	1,956	54
23	—	—	—	—	—	1	—	1	—	—	—	—	—	1	—	579	2
153	21	180	9	130	6	120	7	39	3	49	5	60	10	87	2	5,607	476
1,393	—	468	1	275	—	411	1	2,785	3	174	—	1,072	2	233	—	23,380	37
3	1	2	—	—	—	—	—	2	—	—	—	22	1	—	—	77	6
620	—	123	—	101	—	101	—	148	—	70	—	176	—	138	—	12,208	—
297	—	173	1	57	—	41	—	45	—	35	—	295	2	42	—	5,929	15
795	—	285	—	142	—	118	—	233	—	174	—	395	—	220	—	13,979	—
1,712	—	581	1	300	—	260	—	426	—	279	—	866	2	400	—	32,116	15
—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	3	3
18	—	2	—	—	—	4	—	4	—	—	—	9	—	2	—	171	—
—	—	—	—	—	—	—	—	—	—	—	—	36	—	2	—	54	—
12	1	4	—	6	—	8	—	2	1	2	—	12	—	2	—	267	8
73	—	89	—	15	—	38	—	18	—	10	—	21	—	11	—	1,237	—
105	—	53	—	17	—	33	—	52	1	26	—	110	—	41	—	1,887	3
4	—	43	3	5	—	3	1	5	—	—	—	3	—	1	3	323	36
11	—	30	—	1	—	31	—	9	—	1	—	27	—	1	—	534	5
15	2	38	—	4	1	3	—	16	4	2	—	18	—	5	1	479	25
—	—	2	—	1	—	—	—	1	—	3	—	3	—	—	—	63	1
29	—	24	—	6	—	7	—	20	—	8	—	51	—	2	—	762	—
46	—	44	—	9	—	7	—	46	—	4	—	62	—	6	—	948	1
17	1	105	1	5	—	14	4	9	—	2	—	16	—	7	1	657	25
97	2	60	3	7	—	44	—	48	—	15	—	188	4	53	1	2,296	40
436	8	216	4	81	1	83	3	237	4	36	3	517	2	93	1	7,765	119
101	—	60	—	20	—	21	—	44	—	31	—	19	—	53	—	2,033	1
2	—	17	2	2	—	2	1	4	1	2	—	4	—	1	—	133	12
406	—	261	—	136	—	100	—	132	—	199	—	127	—	101	—	5,314	1
24	—	14	—	7	—	4	—	15	—	14	—	24	—	16	—	602	1
72	—	62	—	13	—	22	—	58	—	54	—	42	—	30	—	1,672	—
220	—	122	—	71	—	102	—	180	—	49	—	114	—	31	—	4,422	1
1	—	1	—	—	—	—	—	—	—	1	—	—	—	—	1	28	7
9	4	6	—	1	1	9	2	45	3	8	3	1	—	—	4	266	92
356	1	200	—	84	—	61	2	131	—	47	1	424	—	79	3	6,547	27
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2	—	5	—	—	—	1	—	2	—	1	—	2	—	1	—	143	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5,317	41	2,699	24	1,196	9	1,448	21	4,330	20	1,017	12	3,851	22	1,218	17	99,766	942

Ratios per 1,000

Military Districts.	Presidency.		Allahabad.		Oudh.		Rohilkhand.		Narbudda.	
Average Strength	2,728		2,486		4,582		3,362		1,323	
Diseases.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
I.—GENERAL DISEASES.										
GROUP "A."										
Sub-Group I. Small-pox	—	—	—	—	—	—	—	—	3·8	·76
Other Eruptive Fevers	—	—	—	—	—	—	—	—	—	—
Enteric Fever	11·0	5·50	36·2	4·02	38·6	9·17	29·7	5·35	24·2	7·56
Other Continued Fevers	13·6	—	54·3	—	29·2	—	20·8	—	14·4	—
Yellow Fever	—	—	—	—	—	—	—	—	—	—
Cholera	·7	·73	1·2	1·21	4·1	2·62	·6	·59	—	—
Dysentery	82·8	5·50	47·1	1·21	29·0	·44	16·4	·89	34·8	2·27
Other Diseases	3·7	—	1·6	—	—	—	13·1	—	—	—
Total	111·8	11·73	140·4	6·44	101·0	12·23	80·6	6·84	77·1	10·36
Sub-Group II.—Malarial Fevers	357·0	·73	185·0	—	172·2	·22	133·6	—	520·0	1·51
Sub-Group III.—Septic Diseases	·4	·37	·8	—	·7	·22	2·7	·30	·8	—
Sub-Group IV. Syphilis, Primary	149·2	—	197·1	—	305·3	—	302·5	—	110·4	—
„ Secondary	79·5	1·10	79·6	·40	97·1	—	150·7	·30	95·2	—
Gonorrhœa	219·6	—	302·5	—	237·2	—	253·4	—	299·2	—
Total	448·3	1·10	579·2	·40	639·7	—	715·6	·30	495·8	—
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—	—	·8	·76
GROUP "B."										
Sub-Group I.—Parasitic Diseases	—	—	·4	—	3·1	—	·6	—	—	—
Sub-Group II. Scurvy	—	—	—	—	·7	—	—	—	·8	—
Alcoholism	9·9	—	3·6	—	3·7	·22	3·3	—	3·8	·76
GROUP "C."										
Debility, &c.	35·6	—	12·1	—	20·3	—	19·0	—	18·9	—
GROUP "D."										
Rheumatism	23·5	—	26·1	—	29·2	—	18·4	—	15·1	—
Tubercular Diseases	2·9	·73	6·4	1·21	2·6	·44	5·4	·30	6·0	3·02
Other Diseases	3·7	—	6·0	—	7·2	—	8·6	—	7·6	—
II.—LOCAL DISEASES.										
Diseases of the—										
1. Nervous System Nervous Diseases	5·9	—	9·3	·80	7·9	·22	4·5	—	4·5	—
Mental „	·4	—	1·6	—	1·1	—	·6	—	3·0	—
2. Eye	5·9	—	12·5	—	10·7	—	11·9	—	18 1	—
3 & 4. Other Organs of Special Senses	7·3	—	13·3	—	12·4	—	11·3	—	13·6	—
5. Circulatory System	3·7	·37	11·7	—	7·6	·44	12·5	·59	6·8	—
6. Respiratory „	11·4	·37	22·9	·40	19·6	—	25·9	·30	14·4	—
7. Digestive „	99·3	2·20	98·1	1·61	106·2	2·40	110·9	1·78	96·8	3·02
8. Lymphatic and Glandular System	50·2	·37	22·1	—	35·8	—	34·2	—	30·2	—
9. Urinary System	1·5	—	2·0	—	1·7	·44	1·5	·30	1·5	—
10. Generative „	104·5	—	137·2	—	10·9	—	15·2	—	83·1	—
11. Organs of Locomotion	10·6	—	14·5	—	8·5	·22	9·8	—	10·6	—
12. Connective Tissue	17·6	—	21·3	—	25·1	—	15·5	—	33·5	—
13. Skin	55·7	—	80·0	—	93·0	—	69·6	—	57·4	—
III.—POISONS	·4	·37	—	—	·4	—	—	·30	1·5	·76
IV.—INJURIES.										
1. General	2·6	1·10	5·6	3·22	2·2	·87	2·1	1·19	3·8	3·02
2. Local	66·3	—	68·8	·40	91·2	·44	74·4	·30	124·0	·76
3. In Action	—	—	—	—	—	—	—	—	—	—
No appreciable disease	1·8	—	2·4	—	·9	—	3·6	—	3·8	—
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—	—	—	—
General Total	1438·1	19·43	1483·5	14·48	1417·1	18·33	1391·1	13·49	1663·8	24·19

of Strength.

Bundelkhand.		Meerut.		Sirhind.		Lahore.		Rawal Pindi.		Peshawar.		Madras.		Southern District.		Bangalore.	
2,505		4,567		4,141		4,542		5,633		2,293		1,069		1,504		2,869	
Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
—	—	·2	—	—	—	·2	—	·5	—	—	—	—	—	—	—	1·4	·36
—	—	—	—	—	—	1·1	—	·2	—	·4	—	·9	—	—	—	·3	—
28·3	10·38	35·9	10·51	40·3	5·80	16·7	4·84	16·2	5·33	41·9	13·52	10·3	1·87	17·3	3·99	9·8	1·05
69·1	—	2·0	—	15·7	—	9·2	—	9·4	—	2·2	—	51·4	—	14·0	—	19·5	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	·2	—	·2	—	—	—	—	—	—	—	—	—	—	—
27·1	·40	29·8	1·31	21·5	·24	25·8	·88	14·4	·18	17·4	·44	62·7	—	33·2	—	37·6	—
—	—	5·7	—	4·1	—	8·6	·22	19·7	·18	6·5	—	38·4	—	3·3	—	27·5	—
124·6	10·78	73·6	11·82	81·9	6·04	61·9	5·94	60·4	5·68	68·5	13·96	163·7	1·87	67·8	3·99	96·2	1·39
255·1	—	402·2	·22	202·4	·24	848·1	1·32	308·1	1·42	550·4	1·31	147·8	—	131·0	—	88·5	—
1·2	—	—	—	·7	—	1·5	—	2·1	—	·9	—	—	—	1·3	—	—	—
188·4	—	115·8	—	126·5	—	139·1	—	239·0	—	70·2	—	174·9	—	142·3	—	174·6	—
88·2	—	52·6	·44	88·9	—	75·3	·22	60·7	·36	74·6	—	121·6	·94	122·3	—	92·7	—
313 0	—	182·2	—	212·3	—	209·8	—	144·5	—	140·4	—	177·7	—	222·7	—	124·8	—
589·6	—	350·6	·44	427·7	—	424·3	·22	444·2	·36	285·2	—	474·3	·94	487·4	—	392·1	—
—	—	—	—	—	—	—	—	—	—	—	—	·9	·94	—	—	—	—
2·0	—	1·5	—	7·5	—	2·4	—	3·7	—	2·2	—	4·7	—	4·7	—	1·7	—
—	—	·7	—	1·0	—	·4	—	·2	—	—	—	—	—	—	—	—	—
6·4	·40	1·8	—	7·0	—	4·2	—	2·7	—	·9	—	5·6	—	6·0	·66	2·1	—
22·8	—	13·6	—	24·1	—	27·5	—	13·0	—	17·9	—	8·4	—	6·0	—	12·9	—
24·0	—	21·9	—	26·6	—	39·6	·22	28·1	—	20·1	—	39·3	—	29·3	—	15·7	—
5·6	—	4·2	·88	1·7	·48	3·1	1·76	·9	—	2·2	·44	35·5	—	19·3	—	2·1	—
7·6	—	1·3	—	9·7	—	5·3	·44	3·9	—	3·1	—	12·2	·94	33·9	—	5·9	—
5·6	—	10·1	·44	9·2	·48	9·5	·44	5·5	·18	3·5	·44	9·4	—	2·7	—	5·9	·32
1·2	—	·9	—	1·0	—	·7	—	·9	—	—	—	2·8	—	1·3	—	·3	—
14·4	—	13·4	—	11·6	—	10·8	—	7·1	—	8·7	—	5·6	—	7·3	—	9·8	—
20·0	—	18·6	—	11·6	—	19·8	—	14·7	·18	11·3	—	18·7	—	8·0	—	4·9	—
13·2	—	7·9	·22	13·3	·72	18·5	·22	6·6	·36	10·0	—	7·5	·94	2·0	·66	3·1	·70
33·5	·40	28·5	·44	22·7	·48	54·4	·44	63·7	1·42	101·6	3·92	22·5	·94	25·3	—	17·8	—
125·3	1·60	119·1	1·97	134·0	·97	156·8	·22	101·9	1·42	89·0	3·49	90·7	7·48	111·0	1·99	67·3	·70
34·3	—	26·7	—	38·6	—	29·1	—	16·2	—	11·8	—	29·0	—	23·3	—	31·0	—
1·6	—	2·0	·22	1·7	—	2·2	·22	1·2	·18	3·1	·44	2·8	—	·7	—	2·1	—
113·4	—	117·6	—	74·4	—	101·7	—	8·5	—	93·8	—	33·7	—	49·9	—	24·7	—
7·2	—	9·9	—	6·8	—	7·7	—	7·5	—	7·4	—	9·4	—	6·6	—	7·0	—
15·2	—	23·9	—	28·3	—	19·4	—	30·7	—	23·5	—	16·8	—	23·9	—	22·0	—
73·9	—	62·6	—	68·3	·24	72·2	—	48·8	—	50·2	—	72·0	—	55·2	—	43·2	—
—	—	1·3	·22	·2	—	·7	—	·2	·18	—	—	—	—	1·3	·66	1·4	—
2·8	2·00	2·0	1·09	1·4	·24	9·2	1·76	6·7	1·42	10·9	6·11	4·7	1·87	·7	—	·3	·32
93·0	·80	77·1	·66	131·9	·24	98·9	—	110·3	·71	58·4	—	73·0	·94	126·3	·66	98·6	·32
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4·4	—	1·1	—	4·1	—	2·4	—	3·9	—	·9	—	·9	—	2·0	—	1·7	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1507·6	15·97	1393·7	18·61	1349·2	10·14	2032·1	13·21	1361·7	13·49	1435·2	30·09	1291·9	16·84	1234·0	8·64	958·5	3·82

Ratios per 1,000

Military Districts.	Belgaum.		Secundera-bad.		Rangoon.		Mandalay.		Poona.	
Average Strength	997		2,764		2,161		1,884		3,873	
Diseases.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
I.—GENERAL DISEASES.										
GROUP "A."										
Sub-Group I. Small-pox	2·0	—	—	—	—	—	—	—	—	—
Other Eruptive Fevers	—	—	—	—	·9	—	—	—	·3	—
Enteric Fever	4·0	—	28·2	5·43	7·9	3·70	3·7	·53	21·7	5·68
Other Continued Fevers	8·0	—	—	—	54·1	—	32·9	—	7·5	—
Yellow Fever	—	—	—	—	—	—	—	—	—	—
Cholera	—	—	2·5	1·45	—	—	2·1	2·12	·3	·26
Dysentery	13·0	—	53·9	·36	36·6	2·31	30·8	·53	25·0	·26
Other Diseases	—	—	·7	—	72·7	—	1·1	—	·3	—
Total	27·1	—	85·4	7·24	172·1	6·02	70·6	3·18	55·0	6·29
Sub-Group II.—Malarial Fevers	70·2	—	142·5	—	146·7	·46	166·7	1·59	346·5	·52
Sub-Group III.—Septic Diseases	—	—	—	—	·5	—	—	—	·5	·26
Sub-Group IV. Syphilis, Primary	286·9	—	265·2	—	236·0	—	283·4	—	166·0	—
„ Secondary	134·4	—	96·6	·36	90·7	—	93·4	—	99·1	—
Gonorrhœa	185·6	—	195·7	—	207·8	—	207·0	—	235·2	—
Total	606·8	—	557·5	·36	534·5	—	583·9	—	500·4	—
Sub-Group V.—Hydrophobia, &c.	—	—	—	—	—	—	—	—	—	—
GROUP "B."										
Sub-Group I.—Parasitic Diseases	7·0	—	—	—	1·4	—	2·7	—	·8	—
Sub-Group II. Scurvy	—	—	—	—	—	—	1·1	—	—	—
Alcoholism	5·0	—	4·7	—	6·0	—	1·1	·53	1·8	·26
GROUP "C."										
Debility, &c.	4·0	—	4·0	—	23·1	—	4·8	—	17·0	—
GROUP "D."										
Rheumatism	35·1	—	27·5	·36	27·3	—	39·3	—	19·6	—
Tubercular Diseases	1·0	1·00	16·6	—	2·8	—	1·1	·53	2·1	—
Other Diseases	3·0	—	18·8	·72	18·0	—	4·2	—	6·5	—
II.—LOCAL DISEASES.										
Diseases of the—										
1. Nervous System Nervous Diseases	7·0	—	4·0	·36	13·4	·93	3·7	—	4·4	·52
Mental „	—	—	·7	—	1·4	—	—	—	1·8	·26
2. Eye	10·0	—	15·9	—	6·9	—	21·2	—	9·7	—
3 & 4. Other Organs of Special Senses	7·0	—	6·9	—	17·6	—	18·0	—	8·3	—
5. Circulatory System	—	—	5·1	·36	3·2	—	8·0	—	3·4	·26
6. Respiratory „	12·0	—	37·6	·36	18·5	—	26·5	·53	13·9	—
7. Digestive „	91·3	—	120·1	·72	90·2	1·39	125·8	1·06	87·0	2·07
8. Lymphatic and Glandular System	39·1	—	53·5	—	24·1	—	33·4	—	30·3	—
9. Urinary System	1·0	—	1·4	·36	2·3	—	1·1	—	2·3	—
10. Generative „	6·0	—	9·8	·36	64·3	—	64·2	—	177·1	—
11. Organs of Locomotion	7·0	—	4·7	—	11·6	—	9·0	—	11·9	—
12. Connective Tissue	29·1	—	32·9	—	27·3	—	32·4	—	18·6	—
13. Skin	30·1	—	44·9	—	63·7	—	102·4	—	36·4	—
III.—POISONS	—	—	—	—	·5	—	·5	—	·3	—
IV.—INJURIES.										
1. General	2·0	1·00	·4	·36	1·4	1·85	1·1	·53	·5	·26
2. Local	88·3	—	110·4	·36	98·6	—	116·2	—	70·0	·26
3. In Action	—	—	—	—	—	—	—	—	—	—
No appreciable disease	3·0	—	1·1	—	2·3	—	3·2	—	·8	—
Cause unknown (refers to deaths only)	—	—	—	—	—	—	—	—	—	—
General Total	1092·3	2·01	1309·1	11·94	1381·8	10·64	1442·1	7·96	1426·8	10·84

of Strength—*continued*.

Mhow.		Bombay.		Deesa.		Aden.		Sind.		Nagpur.		Quetta.		Marching.		Total.	
3,293		1,853		639		1,038		1,522		973		2,354		1,377		68,331	
Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
·3	—	—	—	—	—	—	—	—	—	2·1	—	—	—	—	—	·3	·03
·3	—	10·8	—	1·6	—	—	—	—	—	—	—	1·7	—	—	—	·6	—
19·7	5·16	11·9	4·32	42·3	9·39	4·8	3·85	4·6	1·97	17·5	4·11	11·9	2·55	17·4	1·45	22·6	5·61
4·9	—	49·6	—	145·5	—	101·2	2·89	2·6	—	6·2	—	3·4	—	9·4	—	20·9	·04
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1·2	1·21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	·6	·47
13·1	—	24·8	·54	14·1	—	8·7	—	17·7	—	24·7	1·03	8·5	1·70	35·6	—	28·6	·79
7·0	—	—	—	—	—	1·0	—	·7	—	—	—	—	—	·7	—	8·5	·03
46·5	6·38	97·1	4·86	203·4	9·39	115·6	6·74	25·6	1·97	50·4	5·14	25·5	4·25	63·2	1·45	82·1	6·97
423·0	—	252·6	·54	430·4	—	396·0	·96	1829·8	1·97	178·8	—	455·4	·85	169·2	—	342·2	·54
·9	·30	1·1	—	—	—	—	—	1·3	—	—	—	9·3	·42	—	—	1·1	·09
188·3	—	66·4	—	158·1	—	97·3	—	97·2	—	71·9	—	74·8	—	100·2	—	178·7	—
90·2	—	93·4	·54	89·2	—	39·5	—	29·6	—	36·0	—	125·3	·85	80·5	—	80·8	·22
241·4	—	153·8	—	222·2	—	113·7	—	153·1	—	178·8	—	167·8	—	159·8	—	204·6	—
519·9	—	313·5	·54	469·5	—	250·5	—	279·9	—	286·7	—	367·9	·85	290·5	—	470·6	·22
—	—	—	—	—	—	—	—	—	—	—	—	·4	·42	—	—	·9	·04
5·5	—	1·1	—	—	—	3·9	—	2·6	—	—	—	3·8	—	1·5	—	2·5	—
—	—	—	—	—	—	—	—	—	—	—	—	15·3	—	1·5	—	·8	—
3·6	·30	2·2	—	9·4	—	7·7	—	1·3	·66	2·1	—	5·1	—	1·5	—	3·9	·12
22·2	—	48·0	—	23·5	—	36·6	—	11·8	—	10·3	—	8·9	—	8·0	—	18·1	—
31·9	—	28·6	—	26·6	—	31·8	—	34·2	·66	26·7	—	46·7	—	29·8	—	27·6	·04
1·2	—	23·2	1·62	7·8	—	2·9	·96	3·3	—	—	—	1·3	—	·7	2·18	4·7	·53
3·3	—	16·2	—	1·6	—	29·9	—	5·9	—	1·0	—	11·5	—	·7	—	7·8	·07
4·6	·61	20·5	—	6·3	1·56	2·9	—	10·5	2·63	2·1	—	7·6	—	3·6	·73	7·0	·37
—	—	1·1	—	1·6	—	—	—	·7	—	3·1	—	1·3	—	—	—	·9	·01
8·8	—	18·3	—	9·4	—	6·7	—	13·1	—	8·2	—	21·7	—	1·5	—	11·2	—
14·0	—	23·7	—	14·1	—	6·7	—	30·2	—	4·1	—	26·3	—	4·4	—	13·9	·01
5·2	·30	56·7	·54	7·8	—	13·5	3·85	5·9	—	2·1	—	6·8	—	5·1	·73	9·3	·37
29·5	·61	32·4	1·62	11·0	—	42·4	—	31·5	—	15·4	—	79·9	1·70	24·0	·73	33·6	·59
132·4	2·43	116·6	2·16	126·8	1·56	80·0	2·89	155·7	2·63	37·0	3·08	219·6	·85	67·5	·73	113·6	1·74
30·7	—	32·4	—	31·3	—	20·2	—	28·9	—	31·9	—	8·1	—	24·0	—	29·8	·01
·6	—	9·2	1·08	3·1	—	1·9	·96	2·6	·66	2·1	—	1·7	—	·7	—	1·9	·18
123·3	—	140·9	—	212·8	—	96·3	—	86·7	—	204·5	—	54·0	—	73·3	—	77·8	·01
7·3	—	7·6	—	11·0	—	3·9	—	9·9	—	14·4	—	10·2	—	11·6	—	8·8	·01
21·9	—	33·5	—	20·3	—	21·2	—	38·1	—	55·5	—	17·8	—	21·8	—	24·5	—
66·8	—	65·8	—	111·1	—	156·1	—	118·3	—	50·4	—	48·4	—	22·5	—	64·7	·01
·3	—	·5	—	—	—	—	—	—	—	1·0	—	—	—	—	·73	·4	·10
2·7	1·21	3·2	—	1·6	1·56	8·7	1·93	29·6	1·97	8·2	3·08	·4	—	—	2·90	3·9	1·35
108·1	·30	107·9	—	131·5	—	58·8	1·93	86·1	—	48·3	1·03	180·1	—	37·4	2·18	95·8	·40
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
·6	—	2·7	—	—	—	1·0	—	1·3	—	1·0	—	·8	—	·7	—	2·1	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1614·0	12·45	1456·6	12·95	1871·7	14·08	1395·0	20·23	2844·9	13·14	1045·2	12·33	1635·9	9·35	884·5	12·35	1490·0	13·79

ABSTRACT No. XVI.—TABLE, taken from the REPORT of the PRINCIPAL MEDICAL OFFICER, showing the ADMISSIONS and DEATHS which took place at the CHIEF STATIONS in INDIA during the year 1895.

Districts.	Stations.	Average Annual Strength.	Admitted into Hospital.	Died in the Command.	Ratio per 1,000 of Strength.		Ratio per 1,000 of Strength, 1885 to 1894.	
					Admissions.	Deaths.	Admissions.	Deaths.
PRESIDENCY	Fort William	1,037	1,717	13	1655·7	12·54	1440·1	11·72
	Fort Fulta	23	24	—	1043·5	—	*926·8	12·20
	Fort Chingrikhal	21	34	—	1619·0	—	†1444·4	—
	Dum-Dum	865	1,019	23	1178·0	26·59	1690·6	15·33
	Barrackpore	328	700	13	2134·1	39·63	2004·9	15·55
	Gnathong	38	39	—	1026·3	—	‡1196·9	11·06
	Darjeeling	416	390	4	937·5	9·62	1159·1	15·40
ALLAHABAD	Allahabad	904	1,403	9	1552·0	9·96	1771·5	21·69
	Fort Allahabad	205	281	2	1370·7	9·76	1627·9	16·89
	Dinapore	954	1,316	16	1379·5	16·77	1723·7	18·35
	Benares	423	688	9	1626·5	21·28	1776·8	21·90
OUDH	Lucknow	2,237	3,071	49	1372·8	21·90	1349·2	19·61
	„ Military Prison	41	35	—	853·7	—	1370·0	8·81
	Fyzabad	795	1,193	19	1500·6	23·90	1470·8	10·52
	Sitapur	468	641	4	1369·7	8·55	1370·4	13·42
	Fatehgarh	208	264	4	1269·2	19·23	1573·1	17·38
	Cawnpore	833	1,289	8	1547·4	9·60	1508·0	23·91
ROHILKHAND	Bareilly	1,455	1,935	15	1329·9	10·31	1370·4	16·76
	Shahjahanpur	465	737	10	1584·9	21·51	1643·1	14·16
	Ranikhet	1,019	1,323	11	1296·3	10·79	1184·1	12·54
	Chaubattia	311	526	4	1691·3	12·86	1322·9	12·84
	Naini Tal	112	156	2	1392·9	17·86	1570·4	19·58
NARBUDDA	Jubbulpore	832	1,322	21	1588·9	25·24	1520·6	16·94
	Saugor	377	594	8	1575·6	21·22	1690·1	8·95
	Pachmarhi	114	272	3	2386·0	26·32	1726·4	18·11

* 7 years (1885 and 1889–94). † 4 years (1891–94).
‡ 5 years (1890–94).

Districts.	Stations.	Average Annual Strength.	Admitted into Hospital.	Died in the Command.	Ratio per 1,000 of Strength.		Ratio per 1,000 of Strength, 1885 to 1894.	
					Admissions.	Deaths.	Admissions.	Deaths.
Bundelkhand	Agra	1,220	1,523	21	1248·4	17·21	1568·6	16·23
	Nowgong	371	750	4	2021·6	10·78	1947·8	11·57
	Jhansi	906	1,710	15	1887·4	16·56	2027·3	22·42
	Sipri	8	19	—	2375·0	—	*1902·5	16·06
Meerut	Meerut	2,113	3,052	42	1444·4	19·88	1747·7	17·02
	Muttra	569	770	3	1353·3	5·27	1810·5	19·39
	Delhi	330	777	7	2438·1	21·88	2328·4	20·77
	Roorkee	388	436	9	1123·7	23·20	1518·2	18·89
	Chakrata	1,030	1,189	21	1165·7	20·59	1211·6	11·55
	Landour	157	141	3	898·1	19·11	1896·5	22·56
Sirhind	Umballa	2,101	2,887	26	1374·1	12·38	1200·6	13·52
	Dagshai	795	1,128	5	1418·9	6·29	1106·3	13·16
	Solon	119	187	1	1571·4	8·40	969·7	9·43
	Subathu	521	567	4	1088·3	7·68	1206·4	14·51
	Jutogh	229	215	5	938·9	21·83	1182·0	9·30
	Kasauli	376	603	1	1603·7	2·66	1640·1	16·50
Lahore	Mian Mir	835	2,220	13	2658·7	15·57	2326·6	28·30
	Jullundur	725	1,100	7	1517·2	9·66	1480·7	18·05
	Ferozepore	1,060	2,291	10	2121·3	9·26	1847·2	15·71
	Fort Lahore	93	299	4	3215·1	43·01	2596·4	44·40
	Amritsar	239	453	3	1973·8	13·10	2351·1	19·64
	Multan	849	1,294	16	1524·1	18·85	1567·4	12·50
	Dalhousie	731	1,574	7	2153·2	9·58	1485·0	15·58
Rawal Pindi	Rawal Pindi	3,025	4,462	48	1475·0	15·87	1418·3	17·06
	Sialkot	1,277	1,077	13	843·4	10·18	1594·6	15·29
	Campbellpore	271	366	2	1350·6	7·38	1620·0	12·78
	Fort Attock	160	200	5	1250·0	31·25	2432·5	25·49
	Khyra Gali	24	27	—	1125·0	—	1148·5	7·66
	Bara Gali	21	29	—	1381·0	—	†1164·3	9·52
	Kuldana	237	557	1	2350·2	4·22	1144·0	6·31
	Kalabagh	51	52	—	1019·6	—	1249·5	11·88
	Camp Gharial	215	283	2	1330·2	9·30	886·2	12·10
	„ Thobba	85	105	—	1235·3	—	*1220·3	9·41
	„ Topa	117	82	—	700·9	—	1126·3	8·57
	„ Ghora Dhaka	83	54	1	650·6	12·05	‡746·1	5·64
	Murree	66	34	4	515·2	60·61	1410·8	33·13

* 9 years (1886-94). † 9 years (1885-90 and 1892-94).
‡ 4 years (1889-90 and 1892 and 1894).

Districts.	Stations.	Average Annual Strength.	Admitted into Hospital.	Died in the Command.	Ratio per 1,000 of Strength.		Ratio per 1,000 of Strength, 1885 to 1894.	
					Admissions.	Deaths.	Admissions.	Deaths.
PESHAWAR	Peshawar	1,667	2,547	55	1527·9	32·99	1815·4	22·88
	Nowshera	423	517	8	1222·2	18·91	1619·3	17·02
	Cherat	203	227	6	1118·2	29·56	1203·9	17·89
MADRAS	Madras	533	748	4	1403·4	7·50	1451·1	17·43
	St. Thomas' Mount	338	281	6	831·4	17·75	1540·2	11·91
	Pallaveram	65	76	2	1169·2	30·77	1180·3	4·29
	Poonamallee	133	276	6	2075·2	45·11	2228·6	45·72
SOUTHERN DISTRICT.	Wellington	1,136	1,362	11	1198·9	9·68	1157·2	7·57
	Cannanore	114	110	1	964·9	8·77	1264·7	9·42
	Calicut	107	171	—	1598·1	—	1206·4	14·53
	Malapuram	147	213	1	1449·0	6·80	1331·0	12·07
BANGALORE	Bangalore	2,150	2,010	10	934·9	4·65	1080·1	7·84
	Bellary	695	724	1	1041·7	1·44	1442·9	8·55
	Ramandroog	24	16	—	666·7	—	*927·2	—
BELGAUM	Belgaum	997	1,089	2	1092·8	2·01	1613·4	5·61
SECUNDERABAD	Secunderabad	2,764	3,610	33	1306·1	11·94	1145·5	12·87
RANGOON	Rangoon	1,097	1,528	17	1392·9	15·50	1381·5	16·02
	Port Blair	141	107	—	758·9	—	1048·2	8·51
	Thayetmyo	542	699	3	1289·7	5·54	1580·5	15·19
	Meiktila	381	652	3	1711·3	7·87	1613·6	12·90
MANDALAY	Mandalay	1,029	1,424	13	1383·9	12·63	†1819·0	19·96
	Shwebo	467	757	2	1621·0	4·28	†1592·9	11·45
	Bhamo	230	407	—	1769·6	—	†2294·1	23·65
	Bernardmyo	153	129	—	816·5	—	†1209·0	17·77
POONA	Poona	2,073	3,220	26	1553·3	12·54	1181·0	10·39
	Ahmednagar	722	769	9	1065·1	12·47	1310·7	11·57
	Kirkee	748	1,120	6	1497·3	8·02	1129·7	9·67
	Satara	220	332	—	1509·1	—	1488·3	5·31
	Purandhar	110	85	1	772·7	9·09	1656·8	11·80
MHOW	Mhow	1,790	2,723	22	1513·6	12·23	1465·8	12·86
	Nasirabad	881	1,201	8	1363·2	9·08	1558·3	18·70
	Neemuch	473	1,155	8	2441·9	16·91	1705·0	23·13
	Indore	101	183	1	1861·4	9·90	1764·0	17·79
	Taragarh	39	80	2	1282·1	51·28	1962·2	38·88

* 7 years (1885-86 and 1890-94). † 7 years (1888-94).

Districts.	Stations.	Average Annual Strength.	Admitted into Hospital.	Died in the Command.	Ratio per 1,000 of Strength.		Ratio per 1,000 of Strength, 1885 to 1894.	
					Admissions.	Deaths.	Admissions.	Deaths.
BOMBAY	Bombay	1,194	1,300	14	1088·8	11·73	1429·5	11·10
	Deolali	582	1,292	8	2219·9	13·75	1492·0	13·56
	Khandalla	77	107	2	1389·6	25·97	*1231·8	1·66
DEESA	Deesa	325	506	4	1556·9	12·31	1301·7	10·72
	Ahmedabad	264	613	5	2322·0	18·94	2211·1	21·15
	Mount Abu	50	77	—	1540·0	—	2052·1	15·25
ADEN	Aden	1,038	1,448	21	1395·0	20·23	1503·8	13·45
SIND	Karachi	1,218	3,664	15	3008·2	12·32	1599·9	13·24
	Hyderabad	304	666	5	2190·8	16·45	1648·3	7·76
NAGPUR	Kamptee	929	947	11	1019·4	11·84	1418·9	9·37
	Sitabaldi	44	70	1	1590·9	22·73	1630·8	13·99
QUETTA	Quetta	2,354	3,851	22	1635·9	9·35	1593·9	13·61
MARCHING	Troops on the march.	1,377	1,218	17	884·5	12·35	8530·0	11·59

* 9 years (1885 and 1887–94).

ABSTRACT No. XVII.—TABLE, taken from the REPORT of the PRINCIPAL MEDICAL OFFICER, showing the STATIONS in INDIA at which the ADMISSIONS and DEATHS from ENTERIC FEVER took place in each of the four quarters of the year 1895.

Districts.	Stations.	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.		Total.	
		Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
Presidency	Fort William	4	1	3	3	—	—	—	—	7	4
	Dum Dum	3	1	6	4	6	4	2	1	17	10
	Barrackpore	—	—	1	—	—	—	—	—	1	—
	Darjeeling	2	—	1	—	2	1	—	—	5	1
Allahabad	Allahabad	2	—	7	—	7	—	13	2	29	2
	Fort Allahabad	—	—	1	—	2	—	—	—	3	—
	Dinapore	—	—	7	—	4	3	4	3	15	6
	Benares	4	—	16	1	18	1	5	—	43	2
Oudh	Lucknow	40	12	40	11	15	6	33	6	128	35
	Fyzabad	3	—	7	—	4	—	2	—	16	—
	Sitapur	—	—	10	1	2	—	1	—	13	1
	Fatehgarh	—	—	2	—	2	1	—	—	4	1
	Cawnpore	2	1	8	3	3	—	3	1	16	5
Rohilkhand	Bareilly	5	—	23	4	7	2	17	—	52	6
	Shahjahanpur	1	—	12	4	1	—	—	—	14	4
	Ranikhet	—	—	5	2	7	1	—	—	12	3
	Chaubuttia	—	—	11	2	5	2	—	—	16	4
	Naini Tal	—	—	4	1	2	—	—	—	6	1
Narbudda	Jubbulpore	13	3	3	2	1	—	—	—	17	5
	Saugor	5	2	1	—	1	1	6	1	13	4
	Pachmarhi	—	—	1	—	—	—	1	1	2	1
Bundelkhand	Agra	5	1	7	4	16	11	10	2	38	18
	Nowgong	1	—	—	—	—	—	—	—	1	—
	Jhansi	2	—	6	3	13	4	11	1	32	8

Districts.	Stations.	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.		Total.	
		Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
Meerut	Meerut	11	3	44	13	11	6	28	4	94	26
	Muttra	1	1	1	—	1	—	—	—	3	1
	Delhi	1	—	1	1	1	1	2	1	5	3
	Roorkee	—	—	4	1	5	1	—	—	9	2
	Chakrata	—	—	34	7	18	6	1	3	53	16
Sirhind	Umballa	11	5	50	9	5	2	20	1	86	17
	Dagshai	—	—	10	1	10	1	2	—	22	2
	Solon	—	—	5	1	—	—	—	—	5	1
	Subathu	—	—	5	—	27	2	1	—	33	2
	Jutogh	—	—	13	—	2	2	1	—	16	2
	Kasauli	—	—	3	—	2	—	—	—	5	—
Lahore	Mian Mir	1	1	11	3	—	—	2	—	14	4
	Jullundur	—	—	—	—	2	—	2	1	4	1
	Ferozepore	—	—	10	5	—	—	—	—	10	5
	Fort Lahore	—	—	1	1	1	—	—	—	2	1
	Amritsar	1	—	5	2	—	—	1	—	7	2
	Multan	—	—	13	4	3	2	4	—	25	6
	Dalhousie	—	—	10	1	4	2	—	—	14	3
Rawal Pindi	Rawal Pindi	3	2	39	14	9	5	13	3	64	24
	Sialkot	—	—	—	—	—	—	1	1	1	1
	Campbellpore	—	—	2	—	2	1	1	—	5	1
	Fort Attock	—	—	1	1	—	—	2	—	3	1
	Bara Gali	—	—	—	—	2	—	—	—	2	—
	Kuldana	—	—	1	—	3	—	—	—	4	—
	Kalabagh	—	—	2	—	—	—	—	—	2	—
	Camp Gharial	—	—	5	1	3	1	—	—	8	2
	„ Ghora Dhaka.	—	—	—	—	1	—	—	—	1	—
	Murree	—	—	1	1	—	—	—	—	1	1

Districts.	Stations.	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.		Total.	
		Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
Peshawar	Peshawar	3	2	18	7	40	15	21	4	82	26
	Nowshera	—	—	2	1	5	—	3	—	10	1
	Cherat	—	—	3	1	1	—	—	1	4	2
Madras	Madras	1	—	—	—	3	—	2	1	6	1
	St. Thomas' Mount.	1	—	1	1	1	—	—	—	3	1
	Pallaveram	—	—	—	—	1	—	1	—	2	—
Southern District	Wellington	4	—	10	4	8	2	—	—	22	6
	Cannanore	—	—	—	—	—	—	1	—	1	—
	Calicut	—	—	—	—	1	—	—	—	1	—
	Malapuram	—	—	—	—	—	—	2	—	2	—
Bangalore	Bangalore	2	—	7	2	8	—	1	—	18	2
	Bellary	—	—	—	—	10	1	—	—	10	1
Belgaum	Belgaum	1	—	1	—	2	—	—	—	4	—
Secunderabad	Secunderabad	18	2	22	10	24	2	14	1	78	15
Rangoon	Rangoon	1	—	2	2	6	1	2	2	11	5
	Thayetmyo	—	—	1	—	2	3	—	—	3	3
	Meiktila	—	—	1	—	2	—	—	—	3	—
Mandalay	Mandalay	—	—	2	—	2	1	—	—	4	1
	Bhamo	—	—	3	—	—	—	—	—	3	—
Poona	Poona	13	3	13	4	20	5	1	1	47	13
	Ahmednagar	2	—	1	1	8	2	—	1	11	4
	Kirkee	4	—	10	3	5	1	3	1	22	5
	Satara	—	—	—	—	2	—	—	—	2	—
	Purandhur	—	—	1	—	—	—	1	—	2	—

Districts.	Stations.	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.		Total.	
		Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
Mhow	Mhow	2	—	8	2	10	2	12	3	32	7
	Nasirabad	3	—	10	6	4	1	4	—	21	7
	Neemuch	—	—	—	—	2	—	2	1	4	1
	Indore	—	—	—	—	1	—	—	—	1	—
	Taraghur	—	—	2	—	5	1	—	1	7	2
Bombay	Bombay	2	2	—	—	1	—	8	2	11	4
	Deolali	1	1	—	—	3	1	6	1	10	3
	Khandalla	—	—	1	1	—	—	—	—	1	1
Deesa	Deesa	5	2	2	—	2	1	—	—	9	3
	Ahmedabad	6	—	7	2	3	1	1	—	17	3
	Mount Abu	1	—	—	—	—	—	—	—	1	—
Aden	Aden	3	2	—	1	—	—	2	1	5	4
Sind	Karachi	2	2	3	—	1	—	—	—	6	2
	Hyderabad	—	—	—	—	—	—	1	1	1	1
Nagpur	Kamptee	1	—	5	1	8	1	2	2	16	4
	Sitabuldi	—	—	—	—	1	—	—	—	1	—
Quetta	Quetta	—	—	7	1	11	1	10	4	28	6
Marching	Troops on the March.	3	—	—	—	1	1	20	1	24	2
	Total	200	49	601	161	434	112	309	61	1544	383

ABSTRACT No. XVIII.—TABLE, taken from the REPORT of the PRINCIPAL MEDICAL OFFICER, showing the STATIONS in INDIA at which the ADMISSIONS and DEATHS from CHOLERA took place in each of the four quarters of the year 1895.

Districts.	Stations.	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.		Total.	
		Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
Presidency	Calcutta	—	—	—	—	—	—	1	1	1	1
	Barrackpore	—	—	1	1	—	—	—	—	1	1
Allahabad	Dinapore	—	—	—	—	1	1	—	—	1	1
	Benares	—	—	1	1	—	—	1	1	2	2
Oudh	Fyzabad	—	—	16	10	—	—	1	1	17	11
	Sitapur	—	—	—	—	1	—	—	—	1	—
	Cawnpore	—	—	1	1	—	—	—	—	1	1
Rohilkhand	Shahjahanpur	—	—	—	—	2	2	—	—	2	2
Sirhind	Umballa	—	—	—	—	1	—	—	—	1	—
Lahore	Amritsar	—	—	1	—	—	—	—	—	1	—
Secunderabad	Secunderabad	—	—	7	4	—	—	—	—	7	4
Mandalay	Mandalay	—	—	—	—	1	1	3	3	4	4
Poona	Ahmednagar	—	—	—	—	—	—	1	1	1	1
Mhow	Mhow	—	—	—	—	2	2	1	1	3	3
	Neemuch	—	—	—	—	1	1	—	—	1	1
	Total	—	—	27	17	9	7	8	8	44	32

ABSTRACT No. XIX.—TABLE, taken from the REPORT of the PRINCIPAL MEDICAL OFFICER showing the PREVALENCE of DYSENTERY, DIARRHŒA, and HEPATIC DISEASES (Congestion, Inflammation, and Abscess of Liver) in each of the DISTRICTS in INDIA during the Year 1895.

Military Districts.	Strength.	Dysentery.				Diarrhœa.				Hepatic Diseases.				Total.			
		Number.		Ratio per 1,000 of Strength.		Number.		Ratio per 1,000 of Strength.		Number.		Ratio per 1,000 of Strength.		Number.		Ratio per 1,000 of Strength.	
		Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	
Presidency	2,728	226	15	82·8	5·50	75	—	27·5	—	43	5	15·8	1·83	344	20	126·1	7
Allahabad	2,486	117	3	47·1	1·21	45	—	18·1	—	42	4	16·9	1·61	204	7	82·1	2
Oudh	4,582	133	2	29·0	·44	71	—	15·5	—	114	11	24·9	2·40	318	13	69·4	2
Rohilkhand	3,362	55	3	16·4	·89	72	—	21·4	—	49	4	14·6	1·19	176	7	52·3	2
Narbudda	1,323	46	3	34·8	2·27	15	—	11·3	—	24	4	18·1	3·02	85	7	64·2	5
Bundelkhand	2,505	68	1	27·1	·40	30	—	12·0	—	75	3	29·9	1·20	173	4	69·1	1
Meerut	4,567	136	6	29·8	1·31	156	—	34·2	—	91	8	19·9	1·75	383	14	83·9	3
Sirhind	4,141	89	1	21·5	·24	116	2	28·0	·48	86	2	20·8	·48	291	5	70·3	1
Lahore	4,542	117	4	25·8	·88	177	1	39·0	·22	65	—	14·3	—	359	5	79·0	1
Rawal Pindi	5,632	81	1	14·4	·18	75	—	13·3	—	44	7	7·8	1·24	200	8	35·5	1
Peshawar	2,293	40	1	17·4	·44	36	—	15·7	—	32	8	14·0	3·49	108	9	47·1	3
Madras	1,069	67	—	62·7	—	7	—	6·5	—	47	8	44·0	7·48	121	8	113·2	7
Southern District	1,504	50	—	33·2	—	26	—	17·3	—	33	2	21·9	1·33	109	2	72·5	1
Bangalore	2,869	108	—	37·6	—	15	—	5·2	—	30	2	10·5	·70	153	2	53·3	
Belgaum	997	13	—	13·0	—	—	—	—	—	14	—	14·0	—	27	—	27·1	
Secunderabad	2,764	149	1	53·9	·36	52	—	18·8	—	99	2	35·8	·72	300	3	108·5	1
Rangoon	2,161	79	5	36·6	2·31	5	—	2·3	—	78	2	36·1	·93	162	7	75·0	3
Mandalay	1,884	58	1	30·8	·53	40	—	21·2	—	86	2	45·6	1·06	184	3	97·7	1
Poona	3,873	97	1	25·0	·26	65	—	16·8	—	70	7	18·1	1·81	232	8	59·9	2
Mhow	3,293	43	—	13·1	—	120	—	36·4	—	71	7	21·6	2·13	234	7	71·1	2
Bombay	1,853	46	1	24·8	·54	28	—	15·1	—	60	3	32·4	1·62	134	4	72·3	2
Dessa	639	9	—	14·1	—	28	—	43·8	—	16	1	25·0	1·56	53	1	82·9	1
Aden	1,038	9	—	8·7	—	7	—	6·7	—	16	1	15·4	·96	32	1	30·8	
Sind	1,522	27	—	17·7	—	91	—	59·8	—	32	3	21·0	1·97	150	3	98·6	1
Nagpur	973	24	1	24·7	1·03	5	1	5·1	1·03	8	2	8·2	2·06	37	4	38·0	4
Quetta	2,354	20	4	8·5	1·70	45	—	19·1	—	15	2	6·4	·85	80	6	34·0	2
Marching	1,377	49	—	35·6	—	25	—	18·2	—	21	1	15·3	·73	95	1	69·0	
Total	68,331	1,956	54	28·6	·79	1,427	4	20·9	·06	1,361	101	19·9	1·48	4,744	159	69·4	2

ABSTRACT No. XX.—TABLE, taken from the REPORT of the PRINCIPAL MEDICAL OFFICER, showing the PREVALENCE and MORTALITY in the Cantonments of INDIA, due to DYSENTERY, DIARRHŒA, and HEPATIC DISEASES (Congestion, Inflammation, and Abscess of the Liver) in each Quarter of the Year 1895.

—	Strength.	Dysentery.				Diarrhœa.				Hepatic Diseases.				Total.			
		Number.		Ratio per 1,000 of Strength.		Number.		Ratio per 1,000 of Strength.		Number.		Ratio per 1,000 of Strength.		Number.		Ratio per 1,000 of Strength.	
		Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
1st Quarter -	70,215	290	8	4·1	·11	221	—	3·1	—	280	16	4·0	·23	791	24	11·3	·34
2nd „ -	65,918	455	13	6·9	·20	421	2	6·4	·03	337	19	5·1	·29	1,213	34	18·4	·52
3rd „ -	66,586	670	17	10·1	·26	473	1	7·1	·02	369	30	5·5	·45	1,512	48	22·7	·72
4th „ -	70,604	541	16	7·7	·23	312	1	4·4	·01	375	36	5·3	·51	1,228	53	17·4	·75
Total -	68,331	1,956	54	28·6	·79	1,427	4	20·9	·06	1,361	101	19·9	1·48	4,744	159	69·4	2·33

ABSTRACTS XXI. to XXVI.

ABSTRACT No. XX.—TABLE, taken from the REPORT of the PRINCIPAL MEDICAL OFFICER, showing the PREVALENCE and MORTALITY in the Cantonments of INDIA, due to DYSENTERY, DIARRHŒA, and HEPATIC DISEASES (Congestion, Inflammation, and Abscess of the Liver) in each Quarter of the Year 1895.

—	Strength.	Dysentery.				Diarrhœa.				Hepatic Diseases.				Total.			
		Number.		Ratio per 1,000 of Strength.		Number.		Ratio per 1,000 of Strength.		Number.		Ratio per 1,000 of Strength.		Number.		Ratio per 1,000 of Strength.	
		Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
1st Quarter -	70,215	290	8	4·1	·11	221	—	3·1	—	280	16	4·0	·23	791	24	11·3	·34
2nd „ -	65,918	455	13	6·9	·20	421	2	6·4	·03	337	19	5·1	·29	1,213	34	18·4	·52
3rd „ -	66,586	670	17	10·1	·26	473	1	7·1	·02	369	30	5·5	·45	1,512	48	22·7	·72
4th „ -	70,604	541	16	7·7	·23	312	1	4·4	·01	375	36	5·3	·51	1,228	53	17·4	·75
Total -	68,331	1,956	54	28·6	·79	1,427	4	20·9	·06	1,361	101	19·9	1·48	4,744	159	69·4	2·33

ABSTRACTS XXI. to XXVI.

ABSTRACT No. XXII.—TABLE showing the AVERAGE STRENGTH, SHIP proceeding on and returning from Foreign Service, and proceeding Strength during the Year 1895.

Strength of W.O., N.C.O., and Men:	Passage Out.		Passage Home.	
Embarked	19,670		16,246	
Average Annual Strength	1,010		925	
	Admitted.	Died.	Admitted.	Died.
I.—GENERAL DISEASES.				
GROUP "A."				
Sub-Group I. Small-pox	—	—	—	—
Other Eruptive Fevers	2	—	—	—
Enteric Fever	1	—	—	—
Other Continued Fevers	15	—	8	—
Yellow Fever	—	—	—	—
Cholera	—	—	—	—
Dysentery	—	—	13	—
Other Diseases	18	—	—	—
Total	36	—	21	—
Sub-Group II.—Malarial Fevers	—	—	118	—
Sub-Group III.—Septic Diseases	—	—	2	—
Sub-Group IV. Syphilis, Primary	93	—	138	—
" Secondary	29	—	50	—
Gonorrhœa	235	—	183	—
Total	357	—	371	—
Sub-Group V.—Hydrophobia, &c.	—	—	—	—
GROUP "B."				
Sub-Group I.—Parasitic Diseases	—	—	—	—
Sub-Group II. Scurvy	1	—	—	—
Alcoholism	—	—	—	—
GROUP "C."				
Debility, &c.	6	—	10	—
GROUP "D."				
Rheumatism	25	—	27	—
Tubercular Diseases	—	—	1	—
Other Diseases	16	—	2	1
II.—LOCAL DISEASES.				
Diseases of the—				
1. Nervous System: Nervous Diseases	5	—	1	—
1. Nervous System: Mental "	—	—	1	—
2. Eye	17	—	4	—
3 & 4. Other Organs of Special Senses	4	—	3	—
5. Circulatory System	1	—	—	—
6. Respiratory "	102	—	68	3
7. Digestive "	125	—	47	1
8. Lymphatic and Glandular System	23	—	24	—
9. Urinary System	1	—	—	—
10. Generative "	100	—	63	—
11. Organs of Locomotion	5	—	3	—
12. Connective Tissue	35	—	24	—
13. Skin	102	—	43	—
III.—POISONS	—	—	—	—
IV.—INJURIES.				
1. General	3	1	1	—
2. Local	83	—	30	—
3. In Action	—	—	—	—
No appreciable disease	1	—	1	—
Cause unknown (refers to deaths only)	—	—	—	—
General Total	1,048	1	865	5

ADMISSIONS into HOSPITAL, and DEATHS among the TROOPS ON BOARD from one Colony or Station abroad to another, with the Ratio per 1,000 of the

Intercolonial.		Ratio per 1,000 of the Strength.					
17,585 496		Passage Out.		Passage Home.		Intercolonial.	
Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
—	—	—	—	—	—	—	—
—	—	2·0	—	—	—	—	—
—	—	1·0	—	—	—	—	—
24	—	14·8	—	8·7	—	48·4	—
—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
7	—	—	—	14·0	—	14·1	—
1	—	17·8	—	—	—	2·0	—
32	—	35·6	—	22·7	—	64·5	—
44	—	—	—	127·6	—	88·7	—
—	—	—	—	2·2	—	—	—
113	—	92·1	—	149·2	—	227·8	—
15	—	28·7	—	54·1	—	30·3	—
164	—	232·7	—	197·8	—	330·6	—
292	—	353·5	—	401·1	—	588·7	—
—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
—	—	1·0	—	—	—	—	—
2	—	—	—	—	—	4·0	—
6	—	5·9	—	10·8	—	12·1	—
6	—	24·7	—	29·2	—	12·1	—
1	—	—	—	1·1	—	2·0	—
4	—	15·8	—	2·2	1·06	8·1	—
—	—	4·9	—	1·1	—	—	—
—	—	—	—	1·1	—	—	—
7	—	16·8	—	4·3	—	14·1	—
5	—	4·0	—	3·2	—	10·1	—
1	1	1·0	—	—	—	2·0	2·02
8	—	101·0	—	73·5	3·24	16·1	—
23	1	123·8	—	50·8	1·06	44·4	2·02
4	—	23·8	—	25·9	—	8·1	—
1	—	1·0	—	—	—	2·0	—
61	—	99·0	—	68·1	—	123·0	—
—	—	4·9	—	3·2	—	—	—
12	—	34·7	—	25·9	—	24·2	—
15	—	101·0	—	46·5	—	30·3	—
—	—	—	—	—	—	—	—
—	2	3·0	·99	1·1	—	—	4·06
39	—	82·2	—	32·4	—	78·6	—
—	—	—	—	—	—	—	—
1	—	1·0	—	1·1	—	2·0	—
—	—	—	—	—	—	—	—
563	4	1097·6	·99	935·1	5·40	1135·1	8·06

ABSTRACT No. XXIII.—On the Influence of Age on the Mortality.—Table showing the Death Rates of Warrant Officers, Non-commissioned Officers and Men, at the several Ages, arranged by quinquennial Periods, in the several Commands Abroad.

Commands.	Under 20 Years.				20 and under 25.				25 and under 30.				30 and under 35.				35 and under 40.				40 and upwards.			
	Strength.	Died.	Ratio per 1,000.		Strength.	Died.	Ratio per 1,000.		Strength.	Died.	Ratio per 1,000.		Strength.	Died.	Ratio per 1,000.		Strength.	Died.	Ratio per 1,000.		Strength.	Died.	Ratio per 1,000.	
			1895.	1885-94.			1895.	1885-94.			1895.	1885-94.			1895.	1885-94.			1895.	1885-94.			1895.	1885-94.
Gibraltar	579	2	3·45	2·37	2,471	12	4·86	4·12	1,265	1	·79	4·38	252	—	—	6·38	84	1	11·90	8·26	39	1	25·64	21·21
Malta	1,011	8	7·91	5·72	4,678	28	5·98	7·43	2,054	10	4·87	6·65	882	2	5·24	7·82	122	1	8·20	12·66	45	4	88·89	19·56
Egypt and Cyprus	384	4	10·42	14·71	2,354	16	6·80	21·19	1,478	12	8·12	13·59	312	1	3·20	14·08	120	4	33·33	17·87	32	—	—	25·71
Canada	47	—	—	2·14	738	4	5·42	2·25	391	3	7·67	4·23	110	1	9·09	6·39	40	—	—	18·06	21	—	—	10·60
Bermuda	34	—	—	6·76	764	12	15·71	9·36	470	9	19·15	8·16	133	4	30·07	12·90	38	—	—	20·83	8	—	—	27·03
West Indies	25	—	—	1·97	693	9	12·99	8·01	426	1	2·35	9·32	102	4	39·22	9·55	33	—	—	21·08	8	—	—	16·39
South Africa and St. Helena	189	1	5·29	5·08	1,799	9	5·00	6·45	1,106	7	6·33	5·55	286	1	3·49	7·63	80	2	25·00	6·62	31	—	—	20·29
Mauritius	23	—	—	14·71	421	8	19·00	10·50	151	2	13·25	19·64	46	—	—	21·68	11	—	—	23·26	5	1	200·00	43·48
Ceylon	49	1	20·41	2·82	860	4	4·65	8·95	328	5	15·24	1·33	92	—	—	22·29	17	1	58·82	11·81	4	—	—	14·29
China	15	—	—	2·56	848	11	12·97	9·25	490	7	14·28	11·55	117	2	17·09	17·48	37	—	—	12·99	8	—	—	56·34
Straits Settlements	29	—	—	1·67	720	5	6·94	6·80	495	2	4·04	5·42	91	2	21·98	5·84	24	—	—	12·66	9	—	—	21·98
India	1,887	10	5·29	9·55	35,628	602	16·90	17·28	23,537	242	10·28	13·62	4,779	54	11·30	13·80	1,363	26	19·08	16·19	401	8	19·95	24·92

ABSTRACT No. XXIV.—TABLE showing the various CORPS which served in the UNITED KINGDOM during the Year 1895, and some of the most important of their HEALTH STATISTICS.

Battery or Battalion.	Corps.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalided.	Constantly Sick. Average	Ratio per 1,000 of Mean Strength. Admitted.	Died.	Invalided.	Average Constantly Sick.	Sick Time to each Soldier. Average	Average Duration of each Case of Sickness.	Stations occupied during the Year, &c.	Years at Home since last return from Foreign Service.
	HOUSEHOLD CAVALRY.										days.	days.		
1st	Life Guards	431	388	—	16	20·01	900·2	—	37·12	46·43	16·95	18·83	London, 12 months	79
2nd	Life Guards	380	212	2	17	10·79	557·9	5·26	44·74	28·39	10·36	18·57	Windsor, 9 months; London, 3 months	79
	Royal Horse Guards	400	297	3	9	13·25	742·5	7·50	22·50	33·13	12·09	16·28	Windsor, 3 months; London, 9 months	79
	Household Cavalry detached	2	—	—	—	—	—	—	—	—	—	—		—
	Total Household Cavalry	1,213	897	5	42	44·05	739·5	4·12	34·62	36·31	13·25	17·91		
	CAVALRY.													
1st	Dragoon Guards	246	320	4	3	17·72	1300·8	16·26	12·19	72·03	26·29	20·21	Norwich, 8 months; Colchester 4 months.	4
3rd	Dragoon Guards	49	22	2	—	0·83	449·0	40·82	—	16·94	6·18	13·76	Shorncliffe, 1 month. From South Africa.	—
6th	Dragoon Guards	418	310	—	10	17·56	741·6	—	23·92	42·01	15·33	20·66	York, 7 months; Birmingham and Seaforth, 5 months.	7
7th	Dragoon Guards	490	215	—	5	12·67	438·8	—	10·20	25·86	9·44	21·51	Shorncliffe, 7 months; Norwich 3½ months; Aldershot 1½ months.	1
1st	Royal Dragoons	609	407	5	4	34·11	668·3	8·21	6·57	56·01	20·44	30·59	Dublin, 12 months. Detachment at Curragh.	39
2nd	Royal Dragoons	662	495	—	13	34·42	747·7	—	19·64	51·99	18·98	25·38	Aldershot, 12 months	39
3rd	Hussars	668	353	3	9	22·46	528·4	4·49	13·47	33·62	12·27	23·21	Newbridge, 5 months; Aldershot, 7 months.	16

Battery or Battalion.	Corps.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalided.	Average Constantly Sick.	Ratio per 1,000 of Mean Strength.				Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year, &c.	Years at Home since last return from Foreign Service.
							Admitted.	Died.	Invalided.	Average Constantly Sick.				
	CAVALRY—*cont.*										days.	days.		
4th	Hussars	628	425	4	9	27·38	676·7	6·37	14·33	43·60	15·91	23·51	Hounslow, 5 months; Aldershot, 7 months.	17
6th	Dragoons	392	297	2	6	16·36	757·6	5·10	15·31	41·73	15·23	20·10	Hulme and Seaforth 6 months; Piershill, 6 months.	5
8th	Hussars	402	348	—	9	20·82	850·7	—	22·39	51·79	18·90	22·22	Hounslow, 9 months; Leeds, 3 months	6
9th	Lancers	614	423	3	12	34·60	688·9	4·88	19·54	56·35	20·57	29·86	Aldershot, 12 months	10
10th	Hussars	548	319	2	9	17·35	582·1	3·65	16·42	31·66	11·55	19·85	Ballincollig, 5 months; Newbridge, 7 months.	11
12th	Lancers	377	180	3	4	10·76	477·8	7·96	10·61	28·75	10·49	21·81	Piershill, 6 months; Curragh, 1 month; Cork, 5 months.	8
13th	Hussars	480	322	3	5	16·63	670·8	6·25	10·42	34·65	12·65	18·85	Dundalk and Belfast, 12 months	10
14th	Hussars	447	206	—	1	8·24	460·8	—	2·24	18·43	6·73	14·60	Cahir, 12 months	9
15th	Hussars	677	637	2	8	40·32	940·9	2·95	11·82	59·56	21·74	23·10	Dublin, 12 months	14
17th	Lancers	396	308	1	5	21·52	778·8	2·53	12·64	54·41	19·86	25·50	Preston and York, 12 months	5
20th	Hussars	384	377	3	29	19·67	981·9	7·81	75·52	51·22	18·69	19·01	Colchester, 8 months. To India	—
	Cavalry Depôt	1,348	1,176	4	19	54·91	872·4	2·97	14·09	40·73	14·87	17·04	Canterbury	—
	Various Regiments	151	71	—	2	9·06	470·2	—	13·24	60·00	21·90	46·58		—
	Total Cavalry of the Line	9,986	7,206	41	162	437·39	721·5	4·10	16·22	43·80	15·99	22·16		

Battery or Battalion.	Corps.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalided.	Constantly Sick.	Ratio per 1,000 of Mean Strength.				Average Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year, &c.	Years at Home since last return from Foreign Service.
							Admitted.	Died.	Invalided.	Average Constantly Sick.				
											days.	days.		
	ROYAL ARTILLERY.													
Depôt	Horse Artillery - - -	195	142	2	5	11·36	728·2	10·26	25·64	58·26	21·26	29·20	Woolwich, 12 months - - -	Permanent.
D	Horse Artillery - - -	163	85	1	3	3·73	521·5	6·13	18·40	22·82	8·33	15·98	London, 12 months - - -	7
E	Horse Artillery - - -	155	110	—	2	7·05	709·7	—	12·90	49·35	18·01	25·37	Woolwich, 3½ months; Aldershot, 8½ months.	6
F	Horse Artillery - - -	111	78	—	1	5·47	702·7	—	9·01	49·28	17·99	25·59	Aldershot, 3½ months; Woolwich, 5 months. To India.	—
G	Horse Artillery - - -	154	67	—	1	5·93	435·1	—	6·49	38·51	14·06	32·30	Woolwich, 12 months - - -	6
J	Horse Artillery - - -	155	87	1	3	5·78	561·3	6·45	19·35	37·29	13·61	24·90	Aldershot, 12 months - - -	9
O	Horse Artillery - - -	120	71	—	—	3·80	591·7	—	-	31·67	11·56	19·53	Newbridge, 10 months; Woolwich, 2 months.	6
P	Horse Artillery - - -	143	177	—	3	8·77	1237·8	—	20·98	61·33	22·38	18·08	Aldershot, 12 months - - -	4
Q	Horse Artillery - - -	14	5	—	—	·58	357·1	—	—	41·43	15·12	42·35	Newbridge, 2 months. From India -	—
R	Horse Artillery - - -	119	82	—	4	4·72	689·1	—	33·61	39·63	14·34	21·01	Curragh, 12 months - - -	3
T	Horse Artillery - - -	146	157	1	7	5·57	1075·3	6·85	47·94	38·15	13·92	13·05	Dorchester, 12 months - - -	2
U	Horse Artillery - - -	152	149	—	4	12·57	980·3	—	26·32	82·70	30·18	30·79	Woolwich, 12 months - - -	—
—	Riding Establishment - - -	101	42	1	—	2·56	415·8	9·90	—	25·35	9·25	22·25	Woolwich, 12 months - - -	Permanent.
Depôt	Field Artillery - - - -	391	538	6	8	34·69	1375·9	—	20·46	88·72	32·38	23·53	Woolwich, 12 months - - -	"
1st	Field Battery - - - -	143	141	1	2	12·03	986·0	6·99	13·99	84·13	30·71	31·14	Woolwich, 12 months - -	11
3rd	Field Battery - - - -	177	94	1	2	6·06	531·1	5·65	11·30	34·24	12·50	23·54	Aldershot, 12 months - - -	10

Battery or Battalion.	Corps.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalided.	Constantly Sick.	Ratio per 1,000 of Mean Strength.				Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year, &c.	Years at Home since last return from Foreign Service.
							Admitted.	Died.	Invalided.	Average Constantly Sick.	Average Time to each Soldier.	Average Duration of each Case of Sickness.		
	ROYAL ARTILLERY—*cont.*										days.	days.		
4th	Field Battery - - - -	123	79	—	—	4·06	617·2	—	—	31·87	11·63	18·85	Shorncliffe, 12 months - - -	5
7th	Field Battery - - - -	121	87	—	—	5·20	719·0	—	—	42·97	15·68	21·81	Newcastle, 12 months - - -	7
11th	Field Battery - - - -	137	108	—	1	3·89	788·3	—	7·30	28·39	10·36	13·14	Clonmel, 11 months; Curragh, 1 month.	9
12th	Field Battery - - - -	144	120	1	—	6·19	833·3	6·94	—	42·99	15·69	18·83	Hilsea, 12 months - - -	9
13th	Field Battery - - - -	159	131	1	4	10·84	823·9	6·29	25·16	68·18	24·89	30·21	Aldershot, 12 months - - -	9
14th	Field Battery - - - -	129	56	1	3	2·32	434·1	7·75	23·26	17·98	6·56	15·11	Ipswich, 12 months - - -	7
16th	Field Battery - - - -	132	109	—	3	8·40	825·7	—	22·73	63·64	23·23	28·12	Aldershot, 10½ months; Shorncliffe, 1½ months.	11
18th	Field Battery - - - -	148	79	—	1	3·74	533·8	—	6·76	25·27	9·22	17·27	Exeter, 12 months - - -	8
19th	Field Battery - - - -	126	70	—	3	3·09	555·5	—	23·81	24·52	8·95	16·11	Christchurch, 12 months - -	2
20th	Field Battery - - - -	116	65	—	2	4·02	560·3	—	17·24	34·65	12·65	22·59	Shorncliffe, 11 months; Okehampton, 1 month.	2
25th	Field Battery - - - -	123	89	—	1	3·42	723·6	—	8·13	27·80	10·15	14·03	Limerick, 7 months; Fermoy, 5 months.	9
28th	Field Battery - - - -	105	57	—	4	5·03	542·9	—	38·09	47·90	17·48	32·19	Shorncliffe, 6½ months; Athlone, 5½ months.	4
30th	Field Battery - - - -	164	89	—	3	4·24	542·7	—	18·29	25·85	9·43	17·37	Colchester, 12 months - - -	10
37th	Field Battery - - - -	141	93	1	3	5·66	659·6	7·09	21·28	40·14	14·65	21·21	Hilsea, 12 months - - -	5
38th	Field Battery - - - -	76	87	—	1	5·06	1144·7	—	13·16	66·58	24·30	21·11	Aldershot, 12 months - - -	4
41st	Field Battery - - - -	106	71	—	1	3·46	669·8	—	9·43	32·64	11·91	17·78	Weedon, 8½ months. To India -	—

Battery or Battalion.	Corps.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalided.	Constantly Sick.	Ratio per 1,000 of Mean Strength.				Sick to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year, &c.	Years at Home since last return from Foreign Service.
							Admitted.	Died.	Invalided.	Average Constantly Sick.	Average Time to each Soldier.	Average Duration of each Case of Sickness.		
	ROYAL ARTILLERY—*cont.*										days.	days.		
43rd	Field Battery - - - -	23	21	—	1	1·40	913·0	—	—	60·87	22·22	24·34	Shorncliffe, 2 months. From India -	—
52nd	Field Battery - - - -	131	89	—	2	5·91	679·4	—	15·27	45·11	16·46	24·20	Colchester, 5 months; Weedon, 4 months; Okehampton, 3 months.	8
53th	Field Battery - - - -	130	112	1	2	6·91	861·5	7·69	15·38	53·15	19·40	22·51	Exeter, 7 months, Okehampton, 2½ months; Aldershot, 2½ months.	8
57th	Field Battery - - - -	148	137	—	4	12·54	925·7	—	27·03	84·73	30·93	33·41	Woolwich, 9½ months; Aldershot, 2½ months.	10
58th	Field Battery - - - -	121	99	—	7	7·05	818·2	—	57·85	58·26	21·26	25·99	Woolwich, 9½ months; Aldershot, 2½ months.	8
61st	Field Battery - - - -	101	124	1	1	7·64	1227·7	9·90	9·90	75·64	27·61	22·48	Aldershot, 12 months - - -	4
62nd	Field Battery - - - -	128	114	1	3	5·37	890·6	7·81	23·44	41·95	15·31	17·19	Ipswich, 12 months - - -	8
63rd	Field Battery - - - -	140	72	—	2	6·13	514·3	—	14·28	43·79	16·00	31·00	Newcastle, 12 months - - -	7
64th	Field Battery - - - -	137	84	—	4	5·52	613·1	—	29·20	40·29	14·70	23·98	Sheffield, 12 months - - -	7
66th	Field Battery - - - -	141	119	—	1	4·96	844·0	—	7·09	35·17	12·83	15·32	Maryhill, 12 months - - -	7
67th	Field Battery - - - -	160	89	2	2	4·48	556·2	12·50	12·50	28·00	10·22	18·38	Fermoy, 7 months; Limerick, 5 months.	9
69th	Field Battery - - - -	139	53	1	2	2·56	381·3	7·19	14·39	18·42	6·72	17·63	Weedon, 12 months - - -	9
73rd	Field Battery - - - -	113	125	—	6	7·15	1106·2	—	53·10	63·27	23·09	20·89	Newcastle, 8½ months; Exeter, 3½ months.	5
74th	Field Battery - - - -	122	127	—	1	5·31	1041·0	—	8·20	43·52	15·88	15·25	Athlone, 8 months; Newcastle, 4 months.	5
75th	Field Battery - - - -	142	106	—	3	7·06	746·5	—	21·13	49·72	18·15	24·31	Horfield, 11 months; Okehampton 1 month.	8
76th	Field Battery - - - -	104	74	—	3	3·24	711·5	—	28·85	31·15	11·37	15·98	Longford, 7 months; Athlone, 4 months; Curragh, 1 month.	2

Battery or Battalion.	Corps.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalided.	Average Constantly Sick.	Ratio per 1,000 of Mean Strength.				Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year, &c.	Years at Home since last return from Foreign Service.
							Admitted.	Died.	Invalided.	Average Constantly Sick.				
											days.	days.		
	INFANTRY.													
1st	Royal Scots - - -	606	709	1	13	46·24	1170·0	1·65	21·45	76·30	27·85	23·80	Chatham and Gravesend, 12 months -	4
2nd	Royal West Surrey Regiment -	664	551	1	9	29·71	829·8	1·51	13·55	44·74	16·33	19·67	Dover and Lydd, 11 months; Aldershot, 1 month.	2
2nd	East Kent Regiment - - -	636	460	1	10	21·14	737·4	1·57	15·72	33·24	12·13	16·45	Athlone, 5 months; Kilkenny, 7 months.	9
1st	Royal Lancaster Regiment - -	422	451	1	11	37·50	1068·7	2·37	26·07	89·07	32·51	30·41	Portsmouth, 9 months. To Malta -	—
1st	Northumberland Fusiliers - -	610	501	2	10	35·14	821·3	3·28	16·39	57·61	21·03	25·31	Aldershot, 8 months; Hilsea, 2 months; Portsmouth, 2 months.	15
1st	Royal Warwickshire Regiment -	678	647	1	24	37·72	954·3	1·47	35·40	55·63	20·30	21·27	Chatham, 12 months, detachment Gravesend. To Malta.	15
2nd	Royal Fusiliers - - -	726	495	2	7	25·18	681·8	2·75	9·64	34·68	12·66	18·56	Alderney and Guernsey, 10½ months; Belfast, 1½ months.	6
2nd	(King's) Liverpool Regiment -	696	940	--	50	48·32	1346·7	—	71·63	69·23	25·27	18·76	Colchester, 12 months - - -	3
2nd	Norfolk Regiment - - -	662	577	3	7	37·29	871·6	4·53	10·57	56·33	20·56	23·59	Aldershot, 12 months - - -	5
1st	Lincolnshire Regiment - -	80	51	—	5	4·72	638·7	—	62·50	59·00	21·53	33·78	Aldershot, 1 month. To Malta -	—
2nd	Lincolnshire Regiment - -	389	456	1	6	26·68	1172·2	2·57	15·42	68·59	25·03	21·35	Woolwich, 8 months. From Singapore	—
2nd	Devonshire Regiment - -	776	521	1	13	36·00	671·4	1·29	16·75	46·39	16·93	25·23	Devonport, 7 months; Pembroke Dock, 5 months.	2
1st	Suffolk Regiment - - -	821	520	3	14	29·56	633·4	3·65	17·05	36·00	13·14	20·77	Warley, 9 months; London, 3 months	3
2nd	Somersetshire Light Infantry -	670	584	1	8	37·36	871·6	1·49	11·94	55·76	20·35	23·36	Devonport, 10½ months; Alderney and Guernsey, 1½ months.	1
1st	West Yorkshire Regiment - -	28	27	—	4	3·35	964·3	—	142·86	119·64	43·67	45·30	Aldershot, 8 days. To Gibraltar -	—
2nd	East Yorkshire Regiment - -	691	352	1	6	17·17	509·4	1·45	8·68	24·85	9·07	17·81	Birr, 5 months; Curragh, 7 months -	7

Battery or Battalion.	Corps.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalided.	Constantly Sick.	Ratio per 1,000 of Mean Strength.				Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year, &c.	Years at Home since last return from Foreign Service.
						Average	Admitted.	Died.	Invalided.	Average Constantly Sick.	Average Time to each Soldier.	Average Duration of each Case of Sickness.		
	INFANTRY—*cont.*										days.	days.		
2nd	Bedfordshire Regiment - -	678	624	1	23	36·86	920·3	1·47	33·92	54·36	19·84	21·55	Aldershot, 12 months - - -	3
2nd	Leicestershire Regiment - -	661	483	2	15	30·68	730·7	3·03	22·69	46·41	16·94	23·18	Aldershot, 12 months - - -	5
1st	Royal Irish Regiment - -	613	476	5	5	18·23	776·5	8·16	8·16	29·73	10·85	13·97	Limerick, 12 months - - -	10
1st	Yorkshire Regiment - - -	682	505	5	10	25·23	740·5	7·33	14·66	36·99	13·50	18·23	Jersey, 4 months; Curragh, 8 months	6
1st	Lancashire Fusiliers - - -	670	517	3	24	28·28	771·6	4·48	35·82	42·21	15·41	19·97	Curragh, 7 months; Athlone, 5 months	15
1st	Royal Scots Fusiliers - - -	657	600	3	14	37·12	1050·2	4·57	21·31	56·50	20·62	19·63	Shorncliffe, 2 months; Aldershot 10 months.	14
2nd	Cheshire Regiment - - -	658	766	2	13	44·83	1164·1	3·04	19·75	68·13	24·87	21·36	Aldershot, 10½ months; Buttevant 1½ months.	6
2nd	Royal Welsh Fusiliers - -	711	577	1	13	32·54	811·5	1·41	18·28	45·76	16·70	20·58	Salford, 10 months; Chipping Camp, 2 months.	15
2nd	South Wales Borderers - -	532	579	2	12	36·30	1088·3	3·76	22·56	68·23	24·90	22·88	Hilsea, 8½ months; Aldershot, 3½ months.	2
1st	King's Own Scottish Borderers -	671	629	—	12	53·73	937·4	—	17·88	80·07	29·22	31·17	York, 12 months - - - -	4
2nd	Scottish Rifles - - - -	573	413	4	7	27·33	773·1	6·98	12·22	47·69	17·41	22·52	Parkhurst, 11 months. From India -	—
1st	Royal Inniskilling Fusiliers - -	675	294	4	3	13·27	435·5	5·93	4·44	19·66	7·17	16·46	Kinsale, 12 months - - -	6
2nd	Gloucestershire Regiment - -	637	633	3	18	22·97	993·7	4·71	28·26	36·06	13·16	13·24	Devonport, 12 months - - -	1
2nd	Worcestershire Regiment - -	490	566	4	23	38·65	1141·1	8·06	46·37	77·92	28·44	24·92	Aldershot, 11½ months. To Malta -	—
2nd	East Lancashire Regiment - -	514	517	—	7	31·89	1005·8	—	13·62	62·04	22·65	22·62	Aldershot, 7 months. From Gibraltar	—
2nd	East Surrey Regiment - -	105	109	—	—	6·20	1038·1	—	—	59·05	21·55	20·76	Dover, 2 months. From Malta -	—

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							Admitted.	Died.	Invalided.	Average Constantly Sick.				
	INFANTRY—*cont.*										days.	days.		
2nd	Duke of Cornwall's Light Infantry	654	462	4	11	17·04	706·4	6·12	16·82	26·05	9·51	13·46	Newry and Drogheda, 12 months	9
1st	West Riding Regiment	531	668	3	12	35·75	1258·0	5·65	22·60	67·33	24·57	19·53	Dover and Lydd, 9 months. To Malta	—
1st	Border Regiment	692	700	1	10	46·24	1011·5	1·44	14·45	66·82	24·39	24·11	Woolwich, 4½ months; Aldershot 7½ months.	5
1st	Royal Sussex Regiment	587	368	2	24	19·91	626·9	3·41	40·88	33·92	12·38	19·74	Fermoy, 12 months	10
2nd	Hampshire Regiment	633	269	1	7	18·47	425·0	1·58	11·06	29·18	10·65	25·06	Curragh, 8 months; Birr, 4 months	7
1st	South Staffordshire Regiment	732	419	2	2	15·70	572·4	2·73	2·73	21·45	7·83	13·68	Lichfield, 12 months	2
2nd	Dorsetshire Regiment	700	561	7	18	36·99	738·1	9·21	23·68	48·67	17·76	24·06	Belfast, 10½ months; Enniskillen 1½ months.	15
1st	South Lancashire Regiment	695	437	2	19	28·70	628·8	2·88	27·34	41·29	15·06	23·96	Cork, 12 months	9
1st	Welsh Regiment	563	632	—	10	44·19	1122·5	—	17·76	78·49	28·65	25·52	Pembroke Dock, 7 months; Devonport, 5 months.	2
2nd	Royal Highlanders	671	509	1	7	25·76	758·6	1·49	10·43	38·39	14·01	18·47	Edinburgh Castle, 12 months	14
1st	Oxfordshire Light Infantry	580	603	7	9	39·24	1039·6	12·07	15·52	67·65	24·69	23·75	Dublin, 12 months	8
1st	Essex Regiment	700	554	8	34	26·59	791·4	11·43	48·57	37·98	13·86	17·52	Fermoy, 12 months	11
1st	Derbyshire Regiment	748	805	6	10	54·19	1076·2	8·02	13·37	72·45	26·44	24·57	Dublin, 12 months	17
2nd	Loyal North Lancashire Regiment	742	621	1	17	25·62	836·9	1·35	22·91	34·53	12·60	15·05	Mullingar, 10 months; Curragh 2 months.	12
2nd	Northamptonshire Regiment	633	655	1	16	26·65	1051·4	1·60	25·68	42·78	15·61	14·84	Colchester, 4 months; Jersey, 8 months	3
2nd	Royal Berkshire Regiment	686	711	2	15	46·20	1036·4	2·91	21·86	67·35	24·58	26·71	Devonport, 12 months	14

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							Admitted.	Died.	Invalided.	Average Constantly Sick.				
	INFANTRY—*cont.*										days.	days.		
2nd	Royal West Kent Regiment -	685	515	3	5	23·39	748·9	4·38	7·30	34·14	12·46	16·63	Enniskillen and Londonderry, 10½ months; Dublin, 1½ months.	13
1st	Yorkshire Light Infantry - -	615	537	2	14	31·33	873·2	3·25	22·76	50·94	18·59	21·29	Belfast, 10½ months; Mullingar, 1½ months.	8
2nd	Shropshire Light Infantry - -	645	323	5	4	19·91	500·8	7·75	6·20	30·87	11·27	22·49	Portland, 12 months - - -	14
1st	Middlesex Regiment - - -	607	372	—	7	23·49	612·8	—	11·53	38·70	14·13	23·05	Aldershot, 10 months. From Malta -	—
3rd	King's Royal Rifle Corps -	619	426	2	9	23·00	688·2	3·23	14·54	37·16	13·56	19·71	Parkhurst, 1 month; Shorncliffe 11 months.	4
4th	King's Royal Rifle Corps -	662	405	2	10	28·68	611·8	3·02	15·10	43·32	15·81	25·85	Dover, 12 months - - -	3
1st	Wiltshire Regiment - - -	502	569	3	13	33·56	1133·5	5·98	25·90	66·85	24·40	21·53	Aldershot, 8½ months. To India -	—
2nd	Wiltshire Regiment - - -	120	58	—	—	3·86	483·3	—	—	32·22	11·76	24·49	Hilsea, 2 months. From Burma -	—
1st	Manchester Regiment - -	732	635	4	11	32·69	867·5	5·46	15·03	43·84	16·00	18·44	Preston, 10½ months; Aldershot, 1½ months.	13
2nd	North Staffordshire Regiment -	650	891	4	9	57·92	1370·8	6·15	13·85	89·11	32·52	23·72	Dublin, 10 months; Curragh, 2 months.	7
1st	York and Lancaster Regiment -	636	444	3	15	20·85	698·1	4·72	23·58	32·78	11·96	17·13	Cork, 4½ months; Colchester, 7½ months.	11
1st	Durham Light Infantry - -	651	433	3	6	17·38	665·1	4·61	9·22	26·79	9·78	14·70	Buttevant, 10½ months; Dublin 1½ months.	8
1st	Highland Light Infantry - -	99	87	—	9	8·39	878·8	—	90·91	84·75	30·93	35·19	Aldershot, 1½ months. To Malta -	—
1st	Seaforth Highlanders - -	626	723	7	15	37·30	1154·9	11·18	23·96	59·58	21·75	18·83	Tipperary, ¼ month; Aldershot 11¼ months.	13
2nd	Gordon Highlanders - - -	624	560	1	11	23·21	897·4	1·60	17·63	37·19	13·57	15·12	Maryhill, 12 months - - -	14
1st	Royal Irish Rifles - - -	645	539	1	11	22·81	835·7	1·55	17·05	35·36	12·91	15·44	Brighton, 11 months; Lydd, 1 month; detachment at Chichester.	14

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						Average	Admitted.	Died.	Invalided.	Average Constantly Sick.	Average Time to Soldier.	Average Duration of each Case of Sickness.		
	INFANTRY—*cont.*										days.	days.		
2nd	Royal Irish Fusiliers - - -	635	407	5	15	24·30	640·9	7·87	23·62	38·27	13·95	21·79	Kilkenny, 4 months; Cork, 8 months	11
1st	Connaught Rangers - - -	570	609	3	14	39·29	1068·4	5·26	24·56	68·93	25·16	23·55	Portsmouth, 8 months; Sheffield 4 months.	4
1st	Argyll and Sutherland Highlanders	604	514	2	19	39·89	851·0	3·31	31·46	66·04	24·10	28·32	Aldershot, 12 months - - -	4
1st	Leinster Regiment - - -	595	526	1	9	29·85	884·0	1·68	15·13	50·17	18·31	20·71	Tipperary, 11½ months. To India -	—
1st	Royal Munster Fusiliers - -	763	407	4	12	23·44	533·4	5·24	15·73	30·72	11·21	20·94	Curragh, 12 months - - -	12
1st	Royal Dublin Fusiliers - -	584	607	3	11	34·11	1039·4	5·14	18·83	58·41	21·32	20·51	Sheffield, 7 months; Portsmouth 5 months.	9
2nd	Rifle Brigade - - - -	610	401	5	10	29·57	657·4	8·20	16·39	48·47	17·69	26·91	Dublin, 10 months; Aldershot, 2 months.	15
4th	Rifle Brigade - - - -	628	398	2	18	28·14	633·7	3·18	28·66	44·81	16·35	25·83	Aldershot, 12 months - - -	5
	Mounted Infantry - - -	181	122	—	—	7·15	674·0	—	—	39·50	14·42	21·39	Aldershot, 12 months - - -	—
	Other Infantry - - -	1,218	898	—	37	86·15	737·3	—	30·38	70·73	25·82	35·03	Various - - - - -	—
	Total Infantry Regiments -	44,793	37,637	171	911	2213·58	840·1	3·81	20·34	49·42	18·04	21·47		
	REGIMENTAL DEPÔTS.													
Depôt	Royal Scots - - - -	131	40	—	—	1·75	305·3	—	—	13·36	4·88	15·97	Glencorse - - - -	Since formation.
"	Royal West Surrey Regiment -	153	155	—	—	6·00	1013·1	—	—	39·21	14·31	14·12	Guildford - - - -	"
"	East Kent Regiment - - -	141	96	—	—	3·28	680·8	—	—	23·26	8·49	12·47	Canterbury - - - -	"

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							Admitted.	Died.	Invalided.	Average Constantly Sick.				
	REGIMENTAL DEPÔTS—*cont.*										days.	days.		
Depôt	Royal Lancaster Regiment	173	59	1	1	2·18	341·0	5·78	5·78	12·60	4·60	13·49	Lancaster	Since formation.
"	Northumberland Fusiliers	123	103	3	3	5·02	837·4	24·39	24·39	40·81	14·90	17·80	Newcastle-on-Tyne	"
"	Royal Warwickshire Regiment	159	71	—	2	2·78	446·5	—	12·58	17·48	6·38	14·29	Warwick	"
"	Royal Fusiliers	164	57	—	2	4·06	347·6	—	12·19	24·76	9·04	26·00	Hounslow	"
"	Liverpool Regiment	156	103	1	—	3·20	660·2	6·41	—	20·51	7·49	11·34	Warrington	"
"	Norfolk Regiment	137	33	1	2	1·58	240·9	7·30	14·60	11·53	4·21	17·47	Norwich	"
"	Lincolnshire Regiment	147	73	—	1	3·89	496·6	—	6·80	26·46	9·66	19·45	Lincoln	"
"	Devonshire Regiment	171	97	1	1	3·08	567·2	5·85	5·85	18·01	6·57	11·59	Exeter	"
"	Suffolk Regiment	120	49	1	2	2·56	408·3	8·33	16·67	21·33	7·78	19·07	Bury St. Edmund's	"
"	Somersetshire Light Infantry	95	36	1	1	1·58	378·9	10·53	10·53	16·63	6·07	16·02	Taunton	"
"	West Yorkshire Regiment	155	129	—	4	6·24	832·2	—	25·80	40·26	14·69	17·65	York	"
"	East Yorkshire Regiment	145	51	1	2	1·93	351·7	6·90	13·79	13·31	4·86	13·81	Beverley	"
"	Bedfordshire Regiment	118	59	—	1	2·24	500·0	—	8·47	18·98	6·93	13·86	Bedford	"
"	Leicestershire Regiment	144	91	—	2	2·73	631·9	—	13·89	18·95	6·92	10·95	Leicester	"
"	Royal Irish Regiment	160	109	3	1	3·28	681·3	18·75	6·25	20·50	7·48	10·98	Clonmel	"
"	Yorkshire Regiment	152	33	—	1	1·44	217·1	—	6·58	9·47	3·46	15·93	Richmond	"

Battery or Battalion.	Corps.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalided.	Constantly Sick.	Ratio per 1,000 of Mean Strength.				Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year, &c.	Years at Home since last return from Foreign Service.
							Admitted.	Died.	Invalided.	Average Constantly Sick.				
	REGIMENTAL DEPÔTS—*cont.*										days.	days.		
Depôt	Lancashire Fusiliers - - -	167	56	1	2	2·19	335·3	5·99	11·98	13·11	4·79	14·27	Bury, Lancashire - - -	Since formation.
„	Royal Scots Fusiliers - - -	112	51	—	3	2·93	455·3	—	26·78	26·16	9·55	20·97	Ayr - - - - -	„
„	Cheshire Regiment - - -	128	82	—	1	3·47	640·6	—	7·81	27·11	9·89	15·44	Chester - - - - -	„
„	Royal Welsh Fusiliers - -	147	59	1	1	2·06	401·4	6·80	6·80	14·15	5·16	12·87	Wrexham - - - - -	„
„	South Wales Borderers - -	144	92	—	2	3·42	638·9	—	13·89	23·75	8·67	13·57	Brecon - - - - -	„
„	King's Own Scottish Borderers -	108	82	—	3	2·36	759·3	—	27·78	21·85	7·97	10·50	Berwick-on-Tweed - - -	„
„	Scottish Rifles - - - -	138	52	1	2	1·65	376·8	7·25	14·49	11·96	4·36	11·58	Hamilton - - - - -	„
„	Royal Inniskilling Fusiliers - -	174	60	2	1	2·22	344·8	11·49	5·74	12·76	4·66	13·51	Omagh - - - - -	„
„	Gloucestershire Regiment - -	161	145	—	5	4·17	900·6	—	31·06	25·90	9·45	10·49	Horfield, Bristol - - - -	„
„	Worcestershire Regiment - -	172	147	1	1	2·08	854·6	5·81	5·81	12·09	4·41	5·16	Worcester - - - -	„
„	East Lancashire Regiment - -	101	45	5	2	2·06	445·5	49·50	19·80	20·39	7·44	16·71	Burnley - - - - -	„
„	East Surrey Regiment - -	139	48	1	1	1·89	345·3	7·19	7·19	13·60	4·96	14·37	Kingston-on-Thames - - -	„
„	Duke of Cornwall's Light Infantry	99	60	—	2	1·90	606·1	—	20·20	19·19	7·00	11·55	Bodmin - - - - -	„
„	West Riding Regiment - -	139	133	2	5	6·31	949·6	14·39	35·97	45·39	16·57	17·45	Halifax - - - - -	„
„	Border Regiment - - -	129	49	—	—	1·74	379·8	—	—	13·49	4·92	13·96	Carlisle - - - - -	„
„	Royal Sussex Regiment - -	151	68	—	2	2·29	450·3	—	13·24	15·16	5·53	12·29	Chichester - - - -	„

Battery or Battalion.	Corps.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalided.	Average Constantly Sick.	Ratio per 1,000 of Mean Strength.				Sick to each Average Time Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year, &c.	Years at Home since last return from Foreign Service.
							Admitted.	Died.	Invalided.	Average Constantly Sick.				
	REGIMENTAL DEPÔTS—*cont.*										days.	days.		
Depôt	Hampshire Regiment	166	64	1	—	2·15	385·5	6·02	—	12·95	4·73	12·27	Winchester	Since formation.
"	South Staffordshire Regiment	203	126	—	1	3·68	620·7	—	4·93	18·13	6·62	10·66	Lichfield	"
"	Dorsetshire Regiment	122	58	1	1	1·83	475·4	8·20	8·20	15·60	5·47	11·52	Dorchester	"
"	South Lancashire Regiment	138	97	—	1	2·84	702·9	—	7·25	20·58	7·51	10·69	Warrington	"
"	Welsh Regiment	143	129	—	1	4·86	902·1	—	6·99	33·98	12·40	13·74	Cardiff	"
"	Royal Highlanders	114	16	—	1	·63	140·3	—	8·77	5·53	2·02	14·37	Perth	"
"	Oxfordshire Light Infantry	104	151	1	—	6·83	1451·9	9·61	—	65·67	23·97	16·51	Oxford	"
"	Essex Regiment	152	81	2	2	3·03	532·9	13·16	13·16	19·93	7·29	13·66	Warley	"
"	Derbyshire Regiment	141	26	—	—	1·66	184·4	—	—	7·66	2·79	15·16	Derby	"
"	North Lancashire Regiment	167	98	4	1	4·46	586·8	23·95	5·99	26·71	9·75	16·61	Preston	"
"	Northamptonshire Regiment	139	140	1	2	3·11	1007·2	7·19	14·39	22·37	8·17	8·11	Northampton	"
"	Royal Berkshire Regiment	132	101	1	—	4·47	765·1	7·58	—	33·86	12·36	16·15	Reading	"
"	Royal West Kent Regiment	155	135	1	5	5·55	871·0	6·45	32·26	35·81	13·07	15·00	Maidstone	"
"	Yorkshire Light Infantry	170	98	—	3	3·82	576·5	—	17·65	22·47	8·20	14·23	Pontefract	"
"	Shropshire Light Infantry	144	27	—	—	1·11	187·5	—	—	7·71	2·81	15·01	Shrewsbury	"
"	Middlesex Regiment	139	34	1	—	2·53	244·6	7·19	—	18·20	6·64	27·16	Hounslow	"

Battery or Battalion.	Corps.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalided.	Average Constantly Sick.	Ratio per 1,000 of Mean Strength. Admitted.	Died.	Invalided.	Average Constantly Sick.	Average Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year, &c.	Years at Home since last return from Foreign Service.
	REGIMENTAL DEPÔTS—*cont.*										days.	days.		
Depôt	Lancashire Fusiliers	167	56	1	2	2·19	335·3	5·99	11·98	13·11	4·79	14·27	Bury, Lancashire	Since formation.
„	Royal Scots Fusiliers	112	51	—	3	2·93	455·3	—	26·78	26·16	9·55	20·97	Ayr	„
„	Cheshire Regiment	128	82	—	1	3·47	640·6	—	7·81	27·11	9·89	15·44	Chester	„
„	Royal Welsh Fusiliers	147	59	1	1	2·08	401·4	6·80	6·80	14·15	5·16	12·87	Wrexham	„
„	South Wales Borderers	144	92	—	2	3·42	638·9	—	13·89	23·75	8·67	13·57	Brecon	„
„	King's Own Scottish Borderers	108	82	—	3	2·36	759·3	—	27·78	21·85	7·97	10·50	Berwick-on-Tweed	„
„	Scottish Rifles	138	52	1	2	1·65	376·8	7·25	14·49	11·96	4·36	11·58	Hamilton	„
„	Royal Inniskilling Fusiliers	174	60	2	1	2·22	344·8	11·49	5·74	12·76	4·66	13·51	Omagh	„
„	Gloucestershire Regiment	161	145	—	5	4·17	900·6	—	31·06	25·90	9·45	10·49	Horfield, Bristol	„
„	Worcestershire Regiment	172	147	1	1	2·08	854·6	5·81	5·81	12·09	4·41	5·16	Worcester	„
„	East Lancashire Regiment	101	45	5	2	2·06	445·5	49·50	19·80	20·39	7·44	16·71	Burnley	„
„	East Surrey Regiment	139	48	1	1	1·89	345·3	7·19	7·19	13·60	4·96	14·37	Kingston-on-Thames	„
„	Duke of Cornwall's Light Infantry	99	60	—	2	1·90	606·1	—	20·20	19·19	7·00	11·55	Bodmin	„
„	West Riding Regiment	139	132	2	5	6·31	949·6	14·39	35·97	45·39	16·57	17·45	Halifax	„
„	Border Regiment	129	49	—	—	1·74	379·8	—	—	13·49	4·92	12·96	Carlisle	„
„	Royal Sussex Regiment	151	68	—	2	2·29	450·3	—	13·24	15·16	5·53	12·29	Chichester	„

Battery or Battalion.	Corps.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalided.	Average Constantly Sick.	Ratio per 1,000 of Mean Strength. Admitted.	Died.	Invalided.	Average Constantly Sick.	Sick to each Average Time Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year, &c.	Years at Home since last return from Foreign Service.
	REGIMENTAL DEPÔTS—*cont.*										days.	days.		
Depôt	Hampshire Regiment	166	64	1	—	2·15	385·5	6·02	—	12·95	4·73	12·27	Winchester	Since formation.
„	South Staffordshire Regiment	203	126	—	1	3·68	630·7	—	4·93	18·13	6·62	10·66	Lichfield	„
„	Dorsetshire Regiment	122	58	1	1	1·83	475·4	8·20	8·20	15·60	5·47	11·52	Dorchester	„
„	South Lancashire Regiment	138	97	—	1	2·84	702·9	—	7·25	20·58	7·51	10·69	Warrington	„
„	Welsh Regiment	143	129	—	1	4·86	902·1	—	6·99	33·98	12·40	13·74	Cardiff	„
„	Royal Highlanders	114	16	—	1	·63	140·3	—	8·77	5·53	2·02	14·37	Perth	„
„	Oxfordshire Light Infantry	104	151	1	—	6·83	1451·9	9·61	—	65·67	23·97	16·51	Oxford	„
„	Essex Regiment	152	81	2	2	3·03	532·9	13·16	13·16	19·93	7·29	13·66	Warley	„
„	Derbyshire Regiment	141	26	—	—	1·06	184·4	—	—	7·66	2·79	15·16	Derby	„
„	North Lancashire Regiment	167	98	4	1	4·46	586·8	23·95	5·99	26·71	9·75	16·61	Preston	„
„	Northamptonshire Regiment	139	140	1	2	3·11	1007·2	7·19	14·39	22·37	8·17	8·11	Northampton	„
„	Royal Berkshire Regiment	132	101	1	—	4·47	765·1	7·58	—	33·86	12·36	16·15	Reading	„
„	Royal West Kent Regiment	155	135	1	5	5·55	871·0	6·45	32·26	35·81	13·07	15·00	Maidstone	„
„	Yorkshire Light Infantry	170	98	—	3	3·82	576·5	—	17·65	22·47	8·20	14·23	Pontefract	„
„	Shropshire Light Infantry	144	27	—	—	1·11	187·5	—	—	7·71	2·81	15·01	Shrewsbury	„
„	Middlesex Regiment	139	24	1	—	2·53	244·6	7·19	—	18·20	6·64	27·16	Hounslow	„

Battery or Battalion.	Corps.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalided.	Average Constantly Sick.	Ratio per 1,000 of Mean Strength. Admitted.	Died.	Invalided.	Average Constantly Sick.	Sick Average Time to each Soldier. days.	Average Duration of each Case of Sickness. days.	Stations occupied during the Year, &c.	Years at Home since last return from Foreign Service.
	REGIMENTAL DEPÔTS—*cont.*													
Depôt	Wiltshire Regiment - -	136	93	—	1	2·49	738·1	—	7·94	19·76	7·21	9·77	Devizes - - - -	Since formation.
,,	Manchester Regiment -	169	102	2	2	3·84	603·5	11·83	11·83	22·73	8·29	13·74	Ashton-under-Lyne - - -	,,
,,	North Staffordshire Regiment -	153	67	1	—	2·42	440·8	6·58	—	15·93	5·81	13·18	Lichfield - - - -	,,
,,	York and Lancaster Regiment -	144	86	—	2	3·04	597·2	—	13·89	21·11	7·70	13·90	Pontefract - - - -	,,
,,	Durham Light Infantry -	131	78	—	1	4·51	595·4	—	7·63	34·43	12·56	21·10	Newcastle-on-Tyne - - -	,,
,,	Highland Light Infantry -	135	93	4	3	2·81	688·9	29·63	22·22	20·81	7·60	11·03	Hamilton - - - -	,,
,,	Seaforth Highlanders -	103	60	1	2	2·17	669·9	9·71	19·42	21·07	7·69	11·47	Fort George - - - -	,,
,,	Gordon Highlanders -	103	9	—	—	0·31	87·4	—	—	3·00	1·09	12·57	Aberdeen - - - -	,,
,,	Cameron Highlanders -	166	68	—	7	3·25	409·6	—	42·17	19·58	7·15	17·44	Inverness - - - -	,,
,,	Royal Irish Rifles - -	158	57	2	1	2·74	360·7	12·66	6·33	17·34	6·35	17·55	Belfast - - - -	,,
,,	Royal Irish Fusiliers - -	163	50	—	2	3·06	324·2	—	10·99	16·81	6·14	18·93	Armagh - - - -	,,
,,	Connaught Rangers - -	156	88	2	1	3·09	564·1	12·82	6·41	19·81	7·23	13·83	Galway - - - -	,,
,,	Argyll and Sutherland Highlanders	147	75	1	3	3·01	510·2	6·80	20·41	20·47	7·47	14·64	Stirling - - - -	,,
,,	Leinster Regiment - -	156	48	1	1	3·16	307·7	6·41	6·41	13·85	5·06	16·48	Birr - - - -	,,
,,	Royal Munster Fusiliers - -	137	80	2	3	1·55	307·1	15·75	23·63	13·20	4·45	14·50	Tralee - - - -	,,
,,	Royal Dublin Fusiliers - -	149	76	3	2	3·81	510·1	20·13	13·43	25·57	9·33	18·30	Naas - - - -	,,

Battery or Battalion.	Corps.	Average Annual Strength.	Admitted into Hospital.	Died.	Invalided.	Constantly Sick.	Ratio per 1,000 of Mean Strength.				Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year, &c.	Years at Home since last return from Foreign Service.
							Admitted.	Died.	Invalided.	Average Constantly Sick.				
	REGIMENTAL DEPÔTS—*cont.*										days.	days.		
Depôt	King's Royal Rifle Corps and Rifle Brigade.	403	416	2	1	19·02	1032·3	4·96	2·48	47·20	17·23	16·69	Gosport	Since formation.
	Provisional Battalion	292	360	—	4	16·80	1232·9	—	13·70	57·53	21·00	17·03	Shorncliffe	
	Detached	178	25	—	2	6·00	140·5	—	11·24	33·71	12·30	87·60	Various Stations	
	Total Regimental Depôts	10,459	5,961	61	115	239·64	569·9	5·83	10·99	22·91	8·36	14·67		
	Garrison Staff and Departments	7,068	2,423	36	65	161·42	344·2	5·09	9·20	22·84	8·33	24·21	Various.	

ABSTRACT No. XXV.—Table, taken from the Reports of the Principal Medical Officers, showing the various Corps which served in the different Commands Abroad during the Year 1895, and some of the most important of their Health Statistics.

Battery, Company, or Battn.	Corps and Commands.	Average Annual Strength.	Admitted into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength. Admitted.	Died.	Invalided.	Constantly Sick.	Average Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Completed Years of Service in Command.
	GIBRALTAR.															
	Royal Artillery.												days.	days.		
5th	Eastern Division - -	192	131	2	—	2	2	8·67	682·3	10·42	10·42	45·16	16·48	24·16	Gibraltar, 12 months - - -	2
9th	Eastern Division - -	170	119	—	—	—	2	9·36	700·0	—	11·76	55·06	20·10	28·71	Gibraltar, 11 months. To India, 15th October.	1
14th	Eastern Division - -	165	140	1	—	1	3	9·43	848·5	6·06	18·18	57·15	20·86	24·59	Gibraltar, 12 months - - -	1
15th	Eastern Division - -	144	109	—	—	—	3	6·95	756·9	—	20·83	48·26	17·62	23·27	Gibraltar, 12 months - - -	1
17th	Eastern Division - -	187	96	—	—	—	1	8·80	513·4	—	5·35	47·06	17·18	33·46	Gibraltar, 12 months - - -	1
21st	Eastern Division - -	139	107	2	—	2	3	8·54	769·8	14·39	21·58	61·44	22·43	29·13	Gibraltar, 11 months. From India, 7th February.	—
22nd	Eastern Division - -	151	156	—	—	—	4	7·58	1033·1	—	26·49	50·20	18·32	17·74	Gibraltar, 11 months. From India, 7th February.	—
23rd	Eastern Division - -	14	27	—	—	—	—	1·19	1928·6	—	—	85·00	31·02	16·09	Gibraltar, 1 month. From Aden, 24th November.	—
	Total - - -	1,162	885	5	—	5	18	60·52	761·6	4·30	15·49	52·08	19·01	24·96		
	Royal Engineers - -	354	149	1	—	1	6	10·58	420·9	2·82	16·95	29·89	10·91	25·92	Gibraltar, 12 months - -	Various.

Battery, Company, or Battn.	Corps and Commands.	Average Annual Strength.	Admitted into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength. Admitted.	Died.	Invalided.	Constantly Sick.	Average Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Completed Years of Service in Command.
	GIBRALTAR—*cont.*															
	Infantry Regiments.												days.	days.		
1st	West Yorkshire Regiment -	928	1,215	5	1	6	13	82·59	1309·3	6·46	14·01	89·00	32·48	24·81	Gibraltar, 11½ months. From England, 14th January.	—
2nd	West Yorkshire Regiment -	19	52	—	—	—	—	·91	2736·8	—	—	47·89	17·48	6·39	Gibraltar, ½ month. From Aden, 24th November. To West Africa, 11th December.	—
1st	South Wales Borderers -	666	543	1	—	1	6	38·99	815·3	1·50	9·01	58·54	21·37	26·21	Gibraltar, 8 months. From Egypt, 29th April.	—
2nd	East Lancashire Regiment -	317	304	—	—	—	3	22·52	959·0	—	9·46	71·04	25·93	27·04	Gibraltar, 4 months. To England, 29th April.	2
1st	Middlesex Regiment - -	167	100	—	—	—	*4	8·00	598·8	—	*23·95	47·90	17·49	29·20	Gibraltar, 4 months. To England, 29th April.	2
2nd	King's Royal Rifle Corps -	63	48	—	—	—	5	3·31	761·9	—	79·37	52·54	19·18	25·17	Gibraltar, ½ month. To Malta, 14th January.	4
1st	Cameron Highlanders -	826	519	4	—	—	11	44·83	628·3	4·84	13·32	54·27	19·81	31·53	Gibraltar, 10 months. From Malta, 24th February.	3
	Other Corps - - -	—	—	—	—	4	—	·39	—	—	—	—	—	—	- - - - - - -	—
	Total - - -	2,986	2,781	10	1	11	*42	201·54	931·3	3·35	*14·07	67·49	24·64	26·45		
	Garrison Staff and Departments.															
	Army Service Corps - -	61	20	—	—	—	—	1·03	327·9	—	—	16·89	6·16	18·80	Gibraltar, 12 months - - -	Various.
	Medical Staff Corps - -	75	52	1	—	1	2	2·80	693·3	13·33	26·67	37·33	13·63	19·65	Gibraltar, 12 months - - -	"
	Ordnance Store Corps - -	35	5	—	—	—	—	·64	142·9	—	—	18·29	6·67	46·72	Gibraltar, 12 months - - -	"
	Garrison Staff, &c. - -	17	7	—	—	—	—	·18	411·8	—	—	10·59	3·86	9·39	Gibraltar, 12 months - - -	"
	Total - - -	188	84	1	—	1	2	4·65	446·8	5·32	10·64	24·73	9·03	20·21		
	Grand total -	4,090	3,899	17	1	18	*68	277·29	831·3	3·84	*14·50	59·12	21·58	25·96		

* Includes 1 man discharged in the Command.

Battery, Company, or Battn.	Corps and Commands.	Average Annual Strength.	Admitted into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength. Admitted.	Died.	Invalided.	Constantly Sick.	Average Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Completed Years of Service in Command.
	MALTA.															
	Royal Artillery.												days.	days.		
2nd	Southern Division	173	113	1	1	2	3	8·29	653·2	11·56	17·34	47·92	17·49	26·78	Fort Tigne and Hutments, 12 months	4
6th	Southern Division	15	8	—	—	—	—	·52	533·3	—	—	34·67	12·65	23·73	Fort Tigne and Hutments, 1 month. To Ceylon, 3rd February.	7
8th	Southern Division	155	142	—	—	—	1	11·16	916·1	—	6·45	72·00	26·28	28·69	Fort Tigne and Hutments, 10 months. Upper St. Elmo, 2 months. From Hong Kong, 8th January.	—
16th	Southern Division	130	95	1	—	1	—	5·31	730·8	7·69	—	40·85	14·91	20·40	Fort Ricasoli, 10 months. From Ceylon, 4th April.	—
22nd	Southern Division	182	106	—	—	—	6	8·61	582·4	—	32·97	47·31	17·27	29·65	St. James' Cavalier and Upper St. Elmo, 7 months; Fort Ricasoli, 5 months.	4
25th	Southern Division	12	1	—	—	—	—	·40	83·3	—	—	33·33	12·17	146·00	Fort Ricasoli, ¼ month. To Singapore, 19th January.	7
26th	Southern Division	104	61	1	—	1	—	7·21	586·5	9·62	—	69·33	25·30	43·14	Fort Tigne and Hutments, 9 months. From Singapore, 21st March.	—
29th	Southern Division	169	143	1	1	2	3	11·63	846·1	11·84	17·75	68·82	25·12	29·68	Fort Ricasoli, 7 months; St. James' Cavalier and Upper St. Elmo, 5 months.	4
30th	Southern Division	167	149	1	—	1	2	6·80	892·2	5·99	11·98	40·72	14·86	16·66	Fort Ricasoli, 12 months. From Hong Kong, 8th January.	—
36th	Southern Division	183	110	—	—	—	2	8·39	601·1	—	10·93	45·85	16·73	27·84	Fort St. Elmo, 10 months; Fort Tigne and Hutments, 2 months.	6
	Staff	8	1	1	—	1	—	·14	125·0	125·0	—	17·50	6·39	51·10	St. James' Cavalier, 12 months	Various.
	Total	1,298	929	6	2	8	17	68·46	715·7	6·16	13·10	52·74	19·25	26·90		
	Royal Engineers	202	71	—	—	—	3	5·23	271·0	—	11·45	19·96	7·29	26·89	St. Francis' Barracks, Floriana, 12 months.	Various.

Battery, Company, or Battn.	Corps and Commands.	Average Annual Strength.	Admitted into Hospital.	Deaths.			Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength.				Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Completed Years of Service in Command.
				In the Command.	Of Invalids.	Total.			Admitted.	Died.	Invalided.	Constantly Sick.				
	MALTA—*cont.*															
	Infantry Regiments.												days.	days.		
1st	Royal West Surrey Regiment	40	22	—	—	—	—	2·67	550·0	—	—	66·75	24·36	44·30	Floriana and Nôtre Dame Barracks, ½ month. To India, 16th January.	3
1st	Royal Lancaster Regiment	126	152	1	—	1	—	8·37	1206·3	7·94	—	66·43	24·25	20·10	Pembroke Camp, 3 months. From England, 4th October.	—
1st	Royal Warwickshire Regiment	69	52	—	—	—	—	2·50	753·6	—	—	36·23	13·22	17·55	Fort Chambray, Gozo, and Pembroke Camp, 1½ months. From England, 15th November.	—
1st	Lincolnshire Regiment	787	670	1	—	1	1	35·90	851·3	1·27	1·27	45·62	16·65	19·56	Pembroke Camp, 8 months; Lower St. Elmo, 2½ months. From England, 10th February.	—
1st	Gloucestershire Regiment	906	621	6	—	6	19	45·78	685·4	6·62	20·97	50·53	18·44	26·91	Pembroke Camp, 1 month; Isola Gate District, 10 months. To Egypt, 21st November.	3
2nd	Worcestershire Regiment	89	120	—	—	—	—	5·82	1348·3	—	—	65·39	23·87	17·70	Isola Gate, 1 month. From England, 21st November.	—
2nd	East Surrey Regiment	656	414	3	—	3	9	28·23	631·1	4·57	13·72	43·03	15·71	24·89	Isola Gate, 1 month; Fort Manoel and Hutments, 8½ months. To England, 20th October.	3
1st	West Riding Regiment	187	194	—	—	—	—	7·49	1037·4	—	—	40·05	14·62	14·09	Verdala Barracks, 2 months. From England, 7th October.	—
2nd	King's Royal Rifle Corps	965	724	9	—	9	15	72·54	750·3	9·33	15·54	75·17	27·44	36·57	Floriana and Nôtre Dame Barracks, 11½ months; Detachments at Upper and Lower Marsamuscetto. From Gibraltar, 16th January.	1
1st	North Staffordshire Regiment	876	408	4	—	4	7	28·48	465·7	4·57	7·99	32·51	11·87	25·48	Verdala Barracks, 1 month; Lower St. Elmo, 8 months. To Egypt, 5th October.	3
1st	Highland Light Infantry	775	820	9	—	9	7	47·36	1058·1	11·61	9·03	61·11	22·31	21·08	Verdala Barracks, 8 months; Fort Manoel and Hutments, 2½ months. From England, 18th February.	—
1st	Cameron Highlanders	141	71	—	—	—	3	5·99	503·5	—	21·28	42·48	15·51	30·79	Lower St. Elmo, 1½ months. To Gibraltar, 19th February.	2

Battery, Company, or Battn.	Corps and Commands.	Average Annual Strength.	Admitted into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength. Admitted.	Died.	Invalided.	Constantly Sick.	Average Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Completed Years of Service in Command.
	MALTA—*cont.*															
	Infantry Regiments—cont.												days.	days.		
2nd	Connaught Rangers	52	41	—	—	—	1	2·37	788·5	—	19·23	45·58	16·64	21·10	Fort Manoel and Hutments, 1 month. To Egypt, 11th February.	5
2nd	Leinster Regiment	860	985	9	1	10	31	65·28	1145·4	11·63	36·05	75·91	27·71	24·19	Fort Chambray, Gozo, 10½ months. To Bermuda, 14th November.	1
	Other Corps	5	5	—	—	—	—	·64	1000·0	—	—	128·00	46·72	46·72		—
	Total	6,534	5,299	42	1	43	93	359·42	811·0	6·58	14·23	55·01	20·08	24·76		
	Garrison Staff and Departments.															
	Medical Staff Corps	118	78	2	1	3	8	6·40	661·0	25·42	67·80	54·24	19·80	29·95	Various	Various.
	Other Staff and Departmental Corps.	80	20	3	—	3	1	1·34	250·0	37·50	12·50	16·75	6·11	24·45	Various	„
	Total	198	98	5	1	6	9	7·74	494·9	30·30	45·45	39·09	14·27	28·83		
	Grand Total	8,292	6,397	53	4	57	122	440·85	771·5	6·87	14·71	53·17	19·40	25·15		
	CANADA.															
	Royal Artillery.															
1st	Western Division	138	95	1	—	1	3	4·23	688·4	7·25	21·74	30·65	11·19	16·25	Halifax, 12 months	1
20th	Western Division	126	78	3	—	3	*3	3·16	619·1	23·81	*23·81	25·08	9·15	14·79	Halifax, 12 months. From Bermuda, 9th January.	—
	District Establishment	47	2	—	—	—	—	·19	42·5	—	—	4·04	1·47	34·67	Halifax, 12 months	Various.
	Total	311	175	4	—	4	*6	7·58	564·0	12·86	*19·29	24·37	8·90	15·81		

* Includes 1 man discharged in the Command.

Battery, Company or Battn.	Corps and Commands.	Average Annual Strength.	Admitted into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength. Admitted.	Died.	Invalided.	Constantly Sick.	Average Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Completed Years of Service in Command.
	CANADA—*cont.*															
	Royal Engineers.												days.	days.		
18th	Company	77	19	—	—	—	—	·70	246·7	—	—	9·09	3·32	13·45	Halifax, 12 months	8
18th	Company (Detachment of)	19	4	—	—	—	—	·23	210·5	—	—	12·11	4·42	20·99	Victoria B.C., 12 months	—
40th	Company	60	21	—	—	—	—	·64	350·0	—	—	10·67	3·89	11·12	Halifax, 12 months	7
	Staff	13	2	1	—	1	—	·05	153·8	76·92	—	3·85	1·40	9·12	Halifax, 12 months	Various.
	Staff	3	—	—	—	—	—	—	—	—	—	—	—	—	Victoria, B.C., 12 months	"
	Total	172	46	1	—	1	—	1·62	267·4	5·81	—	9·42	3·44	12·85		
	Infantry Regiments.															
1st	Liverpool Regiment	750	498	2	—	2	14	21·87	664·0	2·67	18·67	29·16	10·65	16·04	Halifax, 11 months. To West Indies, 7th December.	2
1st	Royal Berkshire Regiment	65	52	1	—	1	—	1·82	800·0	15·38	—	28·00	10·22	12·77	Halifax, ¾ months. From Bermuda, 5th December.	—
		815	550	3	—	3	14	23·69	674·8	3·68	17·18	29·07	10·61	15·72		
	Garrison Staff and Departments.	49	18	—	—	—	1	·77	367·3	—	20·41	15·71	5·73	15·61	Halifax and Victoria, 12 months	Various.
	Grand Total	1,347	789	8*	—	8	·21	33·66	585·7	5·94	*15·59	24·99	9·12	15·57		
	BERMUDA.															
	Royal Artillery.															
1st	Western Division	—	—	—	—	—	2	·24	—	—	—	—	—	—	Invalids awaiting embarkation	—

* Includes 1 man discharged in the Command.

Battery, Company, or Battn.	Corps and Commands.	Average Annual Strength.	Admitted into Hospital.	Deaths.			Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength.				Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Completed Years of Service in Command.
				In the Command.	Of Invalids.	Total.			Admitted.	Died.	Invalided.	Constantly Sick.				
	BERMUDA—*cont.*															
	Royal Artillery—cont.												days.	days.		
3rd	Western Division	157	107	2	—	2	1	6·63	681·5	12·74	6·37	42·23	15·41	22·62	St. George's, 12 months. Detachments at Prospect and Ireland Island.	1
19th	Western Division	148	148	5	—	5	1	9·08	1000·0	33·78	6·76	61·35	22·39	22·39	St. George's, 12 months. Detachments at Prospect and Ireland Island.	1
20th	Western Division	1	—	—	—	—	1	·20	—	—	1000·00	200·00	73·00	—	Company left for Canada on 4th January.	—
	Total	306	255	7	—	7	5	16.15	833·3	16·34	16·34	52·78	19·26	23·12		
	Royal Engineers.															
27th	Company	73	23	—	—	—	—	1·34	315·1	—	—	18·36	6·70	21·27	St. George's, 12 months. Detachment at Boaz.	7
36th	Company	93	42	—	—	—	—	·97	451·6	—	—	10·43	3·81	8·43	Prospect, 12 months. Detachment at Boaz.	5
	Total	166	65	—	—	—	—	2·31	391·6	—	—	13·92	5·08	12·97		
	Infantry Regiments.															
1st	Royal Berkshire Regiment	835	560	16	—	16	7	34·07	681·4	19·16	8·38	40·80	14·89	21·85	Prospect, 11 months. Detachments at St. George's, Boaz, and Ireland Island. To Canada, 2nd December.	2
2nd	Leinster Regiment	70	69	1	—	1	—	2·50	985·7	14·29	—	35·71	13·03	13·22	Prospect, 1 month. Detachments at St. George's, Boaz, and Ireland Island. From Malta, 30th November.	—
	Total	905	638	17	—	17	7	36·57	705·0	18·78	7·73	40·41	14·75	20·92		

Battery, Company, or Battn.	Corps and Commands.	Average Annual Strength.	Admitted into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength. Admitted.	Died.	Invalided.	Constantly Sick.	Average Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Completed Years of Service in Command.
	BERMUDA—*cont.*															
	Garrison Staff and Departments.												days.	days.		
	Army Service Corps	11	3	—	—	—	—	·04	272·7	—	—	3·64	1·33	4·87	Various	Various.
	Medical Staff Corps	22	9	—	—	—	1	·75	409·1	—	45·45	34·09	12·44	30·42	„	„
	Ordnance Store Corps	31	12	1	—	1	2	·64	387·1	32·26	64·52	20·64	7·54	19·47	„	„
	Garrison Staff	6	2	—	—	—	—	·10	333·3	—	—	16·67	6·08	18·25	„	„
	Total	70	26	1	—	1	3	1·53	371·4	14·29	42·86	21·86	7·98	21·48		
	Grand Total	1,447	984	25	—	25	15	56·56	680·0	17·28	10·36	39·09	14·27	20·98		
	WEST INDIES. (BARBADOS, &c.)															
	Royal Artillery.															
23rd	Western Division	121	170	5	—	5	2	9·02	1405·0	41·32	16·53	74·55	27·21	19·37	Barbados and St. Lucia, 12 months	1
	District Establishment, &c.	8	3	1	—	1	1	·30	375·0	125·00	125·00	37·50	13·69	36·50	Barbados and St. Lucia, 12 months	Various.
	Total	129	173	6	—	6	3	9·32	1341·1	46·51	23·26	72·25	26·37	19·66		
	Royal Engineers	15	6	—	—	—	—	·41	400·0	—	—	27·33	9·98	24·94	Barbados and St. Lucia, 12 months	Various.

Battery, Company, or Battn.	Corps and Commands.	Average Annual Strength.	Admitted into Hospital.	Deaths.			Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength.				Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Completed Years of Service in Command.
				In the Command.	Of Invalids.	Total.			Admitted.	Died.	Invalided.	Constantly Sick.				
	WEST INDIES—*cont.*															
	BARBADOS—*cont.*												days.	days.		
	Infantry Regiments.															
1st	Liverpool Regiment	17	37	—	—	—	—	·92	2167·5	—	—	54·12	19·75	9·08	Barbados, ¼ month. From Canada, 16th December.	—
1st	Leicestershire Regiment	539	756	4	—	4	14	43·33	1402·6	7·42	25·97	80·39	29·34	20·92	Barbados and St. Lucia, 11¾ months. To South Africa, 23rd December.	2
1st	West India Regiment	4	1	—	—	—	—	·07	250·0	—	—	17·50	6·39	25·55	Barbados and St. Lucia, 12 months	1
	Total	560	794	4	—	4	14	44·32	1417·9	7·14	25·00	79·14	28·89	20·37		
	Garrison Staff and Departments.	35	19	1	—	1	1	·77	542·9	28·57	28·57	22·00	8·03	14·79	Barbados and St. Lucia, 12 months	Various.
	Total, Barbados, &c.	739	992	11	—	11	18	54·82	1342·3	14·88	24·36	74·18	27·07	20·17		
	(JAMAICA.)															
	Royal Artillery.															
14th	Western Division	123	111	2	—	2	1	6·75	902·4	16·26	8·13	54·88	20·03	22·19	Up Park Camp, Newcastle, and Port Royal, 12 months.	1
	Jamaica Company	2	2	—	—	—	—	·30	1000·0	—	—	150·00	54·75	54·75	Port Royal, 12 months	3
	Total	125	113	2	—	2	1	7·05	904·0	16·00	8·00	56·40	20·58	22·77		
	Royal Engineers	43	12	1	—	1	—	1·00	279·1	23·26	—	23·26	8·48	30·41	Various stations	Various.

Battery, Company, or Battn.	Corps and Commands.	Average Annual Strength.	Admitted into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength. Admitted.	Died.	Invalided.	Constantly Sick.	Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Completed Years of Service in Command.
	WEST INDIES—*cont.*															
	JAMAICA—*cont.*															
	Infantry Regiments.												days.	days.		
1st	Liverpool Regiment	12	15	—	—	—	—	·46	1250·0	—	—	38·33	13·99	11·19	Up Park Camp and Newcastle, ½ month. From Canada, 15th December.	—
1st	Leicestershire Regiment	319	211	—	—	—	2	14·88	661·4	—	6·26	46·64	17·02	25·73	Up Park Camp and Newcastle, 11½ months. To South Africa, 18th December.	2
	West India Regiment	13	10	—	—	—	1	·52	769·2	—	76·92	40·00	14·60	18·98	Up Park Camp	Various.
	Total	344	236	—	—	—	3	15·86	686·0	—	8·72	46·10	16·83	24·53		
	Garrison Staff and Departments.	36	21	—	—	—	—	1·67	583·3	—	—	46·38	16·93	29·02	Various stations	Various.
	Total, Jamaica	548	382	3	—	3	4	25·58	697·1	5·47	7·30	46·68	17·04	24·44		
	Grand Total, West Indies	1,287	1,374	14	—	14	22	80·40	1067·6	10·88	17·09	62·47	22·80	21·36		
	SOUTH AFRICA AND ST. HELENA.															
	Cavalry.															
3rd	Dragoon Guards	321	219	1	—	1	2	13·30	682·2	3·11	6·23	41·43	15·11	22·16	Pietermaritzburg, 10 months. To England, 23rd October.	3
7th	Hussars	103	159	1	—	1	—	7·58	1543·7	9·70	—	73·59	26·86	17·40	Pietermaritzburg, 2 months. From India, 23rd October.	—
11th	Hussars	1	2	—	—	—	—	·16	2000·0	—	—	160·00	58·40	29·20		—
	Total	425	380	2	—	2	2	21·04	894·1	4·70	4·70	49·50	18·05	20·21		

Battery, Company, or Battn.	Corps and Commands.	Average Annual Strength.	Admitted into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength. Admitted.	Died.	Invalided.	Constantly Sick.	Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Completed Years of Service in Command.
	SOUTH AFRICA AND ST. HELENA—*cont.*															
	Royal Artillery.												days.	days.		
10th	Mountain Battery	167	166	4	1	5	11	10·97	994·0	29·94	65·87	65·68	23·98	24·12	Pietermaritzburg, 12 months	7
25th	Western Division	156	242	4	—	4	4	18·51	1551·3	25·64	25·64	118·65	43·31	27·92	Cape Town, 12 months	1
26th	Western Division	75	110	1	—	1	2	6·67	1466·6	13·33	26·66	88·93	32·46	23·13	Cape Town and Simonstown, 6 months. From England, 22nd June.	—
	St. Helena Detachment	83	55	2	—	2	—	2·80	662·6	24·10	—	33·74	12·31	18·58	St. Helena, 12 months	6
	District Establishment	55	9	—	—	—	—	·79	163·6	—	—	14·36	5·24	32·04	Cape Town and Simonstown, 12 months.	Various.
	Total	536	582	11	1	12	17	39·74	1085·1	22·39	31·72	74·17	27·06	24·92		
	Royal Engineers.															
29th	Company	99	46	—	—	—	2	3·04	464·6	—	20·20	30·70	11·21	24·12	Various stations	8
	Supernumerary Staff	13	2	—	—	—	—	·30	153·8	—	—	23·07	8·42	54·75	Various stations	Various.
	Total	112	48	—	—	—	2	3·34	428·6	—	17·86	29·82	10·88	25·40		
	Infantry Regiments.															
1st	Royal Highlanders	427	436	—	—	—	5	31·85	1021·1	—	11·71	74·59	27·23	26·66	Cape Town, 12 months	2
2nd	West Riding Regiment	889	883	4	—	4	*15	49·06	993·3	4·50	*16·87	55·19	20·14	20·28	Pietermaritzburg and Eshowe, 12 months.	2

* Includes 1 man discharged in the Command.

Battery, Company, or Battn.	Corps and Commands.	Average Annual Strength.	Admitted into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength. Admitted.	Died.	Invalided.	Constantly Sick.	Average Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Completed Years of Service in Command.
	SOUTH AFRICA AND ST. HELENA—*cont.*															
	Infantry Regiments—cont.												days.	days.		
2nd	York and Lancaster Regiment	926	865	1	—	1	20	59·18	934·1	1·08	21·60	63·91	23·33	24·97	Wynberg and various detachments, 12 months.	4
	Other Corps - - -	2	2	—	—	—	—	·23	1000·0	—	—	115·00	41·97	41·97		
	Total - -	2,244	2,186	5	—	5	*40	140·32	974·2	2·23	*17·83	62·53	22·82	22·43		
	Garrison Staff and Departments.															
	Army Service Corps - -	40	11	—	—	—	—	·53	275·0	—	—	13·25	4·83	17·58	Various stations - - -	Various.
	Ordnance Store Corps - -	39	11	1	—	1	—	·75	282·1	25·64	—	19·23	7·02	24·88	„ - - -	„
	Medical Staff Corps - -	78	25	1	—	1	1	1·92	320·5	12·82	12·82	24·62	8·98	28·03	„ - - -	„
	General Staff - - -	17	4	—	—	—	—	·15	235·3	—	—	8·82	3·22	13·69	„ - - -	„
	Total - - -	174	51	2	—	2	1	3·35	293·1	11·49	5·75	19·25	7·03	23·97		
	Grand Total - -	3,491	3,247	20	1	21	*62	207·79	930·1	6·02	*17·75	59·52	21·72	23·36		
	MAURITIUS.															
	Royal Artillery.															
24th	Western Division - -	133	260	3	—	3	12	13·65	1954·9	22·55	90·22	102·63	37·46	19·16	Port Louis and Curepipe, 12 months.	1

* Includes 1 man discharged in the Command.

Battery, Company, or Battn.	Corps and Commands.	Average Annual Strength.	Admitted into Hospital.	Deaths.			Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength.				Average Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Completed Years of Service in Command.
				In the Command.	Of Invalids.	Total.			Admitted.	Died.	Invalided.	Constantly Sick.				
	MAURITIUS—*cont.*															
	Royal Artillery—cont.												days.	days.		
	Mauritius Company - -	6	2	—	—	—	1	·33	333·3	—	166·66	55·00	20·07	60·22	Port Louis, 12 months - - -	Various.
	District Staff - - -	4	—	—	—	—	—	—	—	—	—	—	—	—	Port Louis and Curepipe, 12 months -	,,
	Total - - -	143	202	3	—	3	13	13·98	1832·2	20·98	90·91	97·76	35·68	19·48		
	Royal Engineers -	29	29	—	—	—	1	1·14	689·7	—	34·48	39·31	14·35	20·81	Port Louis and Curepipe, 12 months -	Various.
	Infantry Regiment.															
1st	Royal Highlanders - -	466	716	6	—	6	23	39·67	1536·5	12·88	49·36	85·13	31·07	20·22	Port Louis and Curepipe, 12 months -	2
	Garrison Staff and Departments.	19	20	2	—	2	1	·97	1052·6	105·26	52·63	51·05	18·63	17·70	Port Louis and Curepipe, 12 months -	Various.
	Grand Total -	657	1,018	11	—	11	38	55·76	1549·4	16·74	57·84	84·87	30·98	19·99		
	CEYLON.															
	Royal Artillery.															
6th	Southern Division - -	109	134	2	—	2	3	9·60	1229·4	18·35	27·52	88·07	32·15	26·15	Colombo, 10 months. From Malta, 21st February.	—
16th	Southern Division - -	39	43	—	—	—	3	2·35	1102·6	—	76·92	60·26	21·99	19·95	Colombo and Trincomali, 2½ months. To Malta, 17th March.	9

Battery, Company, or Battn.	Corps and Commands.	Average Annual Strength.	Admitted into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength. Admitted.	Died.	Invalided.	Constantly Sick.	Average Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Completed Years of Service in Command.
	CEYLON—*cont.*															
	Royal Artillery—cont.												days.	days.		
37th	Southern Division	101	98	1	—	1	—	4·32	970·3	9·90	—	42·77	15·61	16·09	Trincomali, 10 months. Formed from a portion of No. 6 Company.	—
	Total	249	275	3	—	3	6	16·27	1104·4	12·05	24·10	65·34	23·85	21·59		
	Royal Engineers	75	63	3	—	3	—	2·48	840·0	40·00	—	33·07	12·07	14·37	Colombo and Trincomali, 12 months	Various.
	Infantry Regiment.															
2nd	Royal Warwickshire Regiment.	985	1,017	5	—	5	16	64·05	1033·5	5·08	16·24	65·03	23·73	23·00	Colombo, 12 months. Detachments at Kandy and Trincomali.	3
	Garrison Staff and Departments.	41	4	—	—	—	—	·17	97·6	—	—	4·15	1·51	15·51		
	Grand Total	1,350	1,359	11	—	11	22	82·97	1006·7	8·15	16·30	61·46	22·43	22·28		
	CHINA.															
	Royal Artillery.															
12th	Southern Division	49	38	5	—	5	14	12·40	1597·3	33·56	93·96	83·22	30·38	19·02	Hong Kong, 12 months	1
38th	Southern Division	143	164	3	—	3	6	10·55	1146·8	20·98	41·96	73·77	26·93	23·48	Hong Kong, 12 months	1
	Total	292	402	8	—	8	20	22·95	1376·7	27·40	68·49	78·60	28·69	20·84		

Battery, Company, or Battn	Corps and Commands.	Average Annual Strength.	Admitted into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength. Admitted.	Died.	Invalided.	Constantly Sick.	Average Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Completed Years of Service in Command.
	CHINA—*cont.*												days.	days.		
	Royal Engineers	146	84	—	—	—	5	4·32	575·3	—	34·25	29·45	10·75	18·68	Hong Kong, 12 months	Various.
	Infantry Regiments.															
1st	Shropshire Light Infantry	—	1	—	—	—	—	·17	—	—	—	—	—	62·05		
1st	Rifle Brigade	1,028	1,587	12	—	12	54	82·90	1543·8	11·67	52·53	80·64	29·43	19·07	Hong Kong, 12 months	1
	Total	1,028	1,588	12	—	12	54	83·07	1544·7	11·67	52·53	80·81	29·49	19·09		
	Garrison Staff and Departments.	49	22	—	—	—	2	·86	449·0	—	40·82	17·55	6·41	14·27	Hong Kong, 12 months	Various.
	Grand total	1,515	2,096	20	—	20	81	111·18	1383·5	13·20	53·46	73·39	26·78	19·36		
	STRAITS SETTLEMENTS.															
	Royal Artillery.															
25th	Southern Division	164	166	1	—	1	2	12·42	1012·2	6·10	12·20	75·73	27·64	27·31	Fort Canning, Blakan Mati, and outlying Forts. Headquarters arrived from Malta, 13th February.	—
26th	Southern Division	26	28	1	1	2	3	2·07	1076·9	76·92	115·	79·62	06	26·98	Fort Canning, Blakan Mati, and outlying Forts. To Malta, 26th February.	5
38th	Southern Division	65	63	—	—	—	—	4·62	969·2	—	—	71·08	25·94	26·77	Fort Canning and outlying Forts, 7 months. Company formed, 1st June.	—
	Total	255	257	2	1	3	5	19·11	1007·8	11·76	19·61	74·94	27·35	27·14		

Battery, Company, or Battn.	Corps and Commands.	Average Annual Strength.	Admitted into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength. Admitted.	Died.	Invalided.	Constantly Sick.	Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Completed Years of Service in Command.
	STRAITS SETTLEMENTS—*cont.*												days.	days.		
	Royal Engineers -	82	35	1	—	1	—	2·18	426·8	12·20	—	26·59	9·70	22·73	Pulo Brani, Fort Canning, and Tanlin, 12 months.	Various.
	Infantry Regiments.															
2nd	Northumberland Fusiliers -	794	1,011	6	—	6	8	64·32	1273·3	7·56	10·08	81·01	29·56	23·21	Tanglin, Fort Canning, and Penang, 8½ months. From India, 16th March.	—
2nd	Lincolnshire Regiment -	200	155	—	1	1	5	10·87	775·0	5·00	25·00	54·35	19·84	25·60	Tanglin, Fort Canning, and Penang, 4 months. To England, 23rd March.	2
	Total - - -	994	1,166	6	1	7	13	75·19	1173·0	7·04	13·08	75·64	27·61	23·54		
	Garrison Staff and Departments.	37	11	—	—	—	—	·50	297·3	—	—	13·51	4·93	16·59	Various stations - - -	Various.
	Grand total -	1,368	1,469	9	2	11	18	96·98	1073·8	8·04	13·16	70·89	25·88	24·69		
	EGYPT.															
	Cavalry.															
2nd	Dragoon Guards - -	508	644	4	—	4	4	42·59	1267·7	7·87	7·87	83·84	30·60	24·14	Abbassiyeh, 12 months - -	1
	Royal Artillery.															
32d	Field Battery - - -	180	150	2	—	2	4	12·27	833·3	11·11	22·22	68·11	24·88	29·86	Abbassiyeh, 12 months - -	2
10th	Eastern Division - -	5	3	—	—	—	—	·04	600·0	—	—	8·00	2·92	4·86	Alexandria and Cairo. To England, 11th January.	9
16th	Eastern Division - -	146	142	2	—	2	1	7·89	972·6	13·70	6·85	54·04	19·73	20·28	Alexandria and Cairo, 12 months. From England, 4th January.	—
	Total - - -	331	295	4	—	4	5	20·20	891·2	12·09	15·11	61·03	22·27	24·99		

Battery, Company, or Battn.	Corps and Commands.	Average Annual Strength.	Admitted into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength. Admitted.	Ratio per 1,000 of Strength. Died.	Ratio per 1,000 of Strength. Invalided.	Ratio per 1,000 of Strength. Constantly Sick.	Average Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Completed Years of Service in Command.
	EGYPT—*cont.*															
	Royal Engineers.												days.	days.		
2nd	Company	104	22	—	—	—	1	1·25	211·5	—	9·62	12·02	4·38	20·74	Alexandria and Cairo, 12 months	1
	Supernumerary Staff	7	1	—	—	—	—	·11	142·9	—	—	15·71	5·74	40·15	Cairo, 12 months	Various.
	Total	111	23	—	—	—	1	1·36	207·2	—	9·01	12·25	4·47	21·58		
	Infantry Regiments.															
1st	East Yorkshire Regiment	946	1,008	9	—	9	8	62·72	1065·5	9·51	8·46	66·30	24·20	22·71	Cairo, 11 months. To India, 25th November.	1
1st	South Wales Borderers	228	208	1	—	1	3	16·78	912·3	4·39	13·16	73·60	26·86	29·45	Cairo, 3½ months. To Gibraltar, 19th April.	3
1st	Gloucestershire Regiment	188	87	1	—	1	1	3·99	462·8	5·32	5·32	21·22	7·75	16·74	Alexandria and Cyprus, 1½ months. From Malta, 12th October.	—
2nd	South Staffordshire Regiment	722	598	5	—	5	7	45·64	828·3	6·93	9·70	63·21	23·07	27·86	Cairo, 10½ months. To India, 10th October.	2
2nd	South Lancashire Regiment	145	137	2	—	2	12	12·25	944·8	13·79	82·76	84·05	30·84	32·64	Abbassiyeh, 1½ months. To India, 18th February.	2
1st	North Staffordshire Regiment	220	149	2	—	2	—	10·52	677·3	9·09	—	47·82	17·45	25·77	Cairo, 1½ months. From Malta, 11th October.	—
2nd	Connaught Rangers	845	941	4	—	4	1	64·50	1113·6	4·73	1·18	76·33	27·86	25·02	Alexandria, Cairo, and Cyprus, 10½ months. From Malta, 15th February.	—
	Mounted Infantry	121	95	—	—	—	—	4·58	785·1	—	—	37·85	13·82	17·39		
	Other Corps	—	—	—	—	—	—	·05	—	—	—	—	—	—		
	Total	3,415	3,223	24	—	24	32	221·03	943·8	7·03	9·37	64·72	23·62	25·03		

Battery, Company, or Battn.	Corps and Commands.	Average Annual Strength.	Admitted into Hospital.	Deaths. In the Command.	Deaths. Of Invalids.	Deaths. Total.	Invalids sent Home.	Average Number Constantly Sick.	Ratio per 1,000 of Strength. Admitted.	Died.	Invalided.	Constantly Sick.	Average Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Completed Years of Service in Command.
	EGYPT—*cont.*															
	Garrison Staff and Departments.												days.	days.		
	Army Service Corps - -	65	18	2	—	2	2	2·38	276·9	30·77	30·77	36·62	13·36	48·26	Alexandria, Cairo, and Cyprus, 12 months.	Various.
	Medical Staff Corps - -	114	72	2	—	2	1	5·50	631·6	17·54	8·77	48·25	17·61	27·88	Alexandria, Cairo, and Cyprus, 12 months.	"
	Ordnance Store Corps - -	52	16	1	—	1	—	1·05	307·7	19·23	—	20·19	7·37	23·95	Alexandria, Cairo, and Cyprus, 12 months.	"
	Army Pay Corps - -	9	1	—	—	—	—	·07	111·1	—	—	7·77	2·84	25·55	Cairo, 12 months - - -	"
	Military Police - - -	68	13	—	—	—	1	1·24	191·2	—	14·71	18·53	6·66	34·82	Alexandria and Cairo, 12 months -	"
	Garrison Staff - - -	7	1	—	—	—	—	·03	142·8	—	—	4·28	1·56	10·95	Alexandria and Cairo, 12 months -	"
	Total - - -	315	121	5	—	5	4	10·27	384·1	15·87	12·70	32·60	11·90	30·98		
	Grand Total -	4,680	4,306	37	—	37	46	295·45	920·1	7·91	9·83	63·13	23·04	25·04		

ABSTRACT No. XXVI.—TABLE, taken from the REPORT of the PRINCIPAL MEDICAL OFFICER, showing the ADMISSIONS, MORTALITY, and INVALIDING in each CORPS serving in INDIA during the Year 1895.

Corps.	Average Annual Strength.	Admitted into Hospital.	Deaths in the Command.	Invalided.	Average Number Constantly Sick.	Ratio per 1,000 of Strength.				Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Years of Service in India.
						Admissions into Hospital.	Deaths.	Invalids.	Constantly Sick.				
CAVALRY.										days.	days.		
4th Dragoon Guards - -	613	796	15	4	57·41	1298·5	24·47	6·53	93·65	34·18	26·32	Rawal Pindi, 12 months - - - -	1
5th „ „ - -	617	829	12	14	50·59	1343·6	19·45	22·69	81·99	29·93	22·27	Meerut, 12 months - - - - -	2
5th Lancers - - -	617	826	7	4	41·65	1338·7	11·35	6·48	67·50	24·64	18·40	Muttra, 12 months; Dett. Chakrata, 5½ months -	7
7th Hussars - - -	480	594	8	11	48·87	1237·5	16·67	22·92	101·81	37·16	30·03	Mhow, 9 months (left for Natal on 4th October, 1895).	8
11th „ - - -	624	472	3	5	24·80	756·4	4·81	8·01	39·74	14·51	19·18	Sialkot, 12 months - - - - -	3
16th Lancers - - -	591	889	12	21	70·47	1504·2	20·30	35·53	119·24	43·52	28·93	Lucknow, 12 months - - - - -	5
18th Hussars - - -	607	742	5	9	45·67	1222·4	8·24	14·83	75·24	27·46	22·47	Umballa, 12 months - - - - -	6
19th „ - - -	603	615	3	29	57·65	1019·9	4·98	48·09	95·61	34·90	34·22	Bangalore, 12 months - - - - -	4
20th „ - - -	138	205	—	—	9·05	1485·5	—	—	65·58	23·94	16·11	Mhow, 2 months (arrived from England on 5th November 1895).	—
21st „ - - -	549	762	7	23	73·15	1388·0	12·75	41·89	133·24	48·63	35·04	Secunderabad, 12 months - - - -	8
Total - - -	5,439	6,730	72	120	479·31	1237·4	13·24	22·06	88·12	32·17	26·60		

Corps.	Average Annual Strength.	Admitted into Hospital.	Deaths in the Command.	Invalided.	Average Number Constantly Sick.	Ratio per 1,000 of Strength.				Sick to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Years of Service in India.
						Admissions into Hospital.	Deaths.	Invalids.	Constantly Sick.	Average Time			
										days.	days.		
ARTILLERY.													
A Battery, R.H.A. - -	141	229	1	5	10·46	1624·1	7·09	35·46	74·18	27·06	16·67	Umballa, 10 months; marching, 2 months - -	6
B „ „ - -	175	190	4	1	10·78	1085·7	22·86	5·71	61·60	22·48	20·71	Rawal Pindi, 11½ months; Campbellpore, ½ month.	6
C „ „ - -	148	170	1	1	11·26	1148·6	6·76	6·76	76·08	27·77	24·18	Meerut, 12 months - - - - -	6
F „ „ - -	30	29	1	—	·52	966·7	33·33	—	17·33	6·33	6·54	Sialkot, 1½ months; marching, 1 month (arrived from England on 21st October 1895).	—
H „ „ - -	162	220	1	—	11·63	1358·0	6·17	—	71·79	26·20	19·30	Umballa, 10½ months; marching, 1½ months -	6
I „ „ - -	146	150	1	5	10·06	1027·4	6·85	34·25	68·90	25·15	24·48	Mhow, 12 months - - - - -	2
K „ „ - -	149	152	2	6	14·50	1020·1	13·42	40·27	97·32	35·52	34·82	Lucknow, 11½ months; marching, ½ month -	4
L „ „ - -	173	221	1	1	13·59	1277·5	5·78	5·78	78·55	28·67	22·45	Kirkee, 12 months - - - - -	3
M „ „ - -	163	189	1	9	14·90	1159·5	6·13	55·21	91·41	33·37	28·78	Bangalore, 12 months - - - - -	9
N „ „ - -	158	214	5	6	15·12	1354·4	31·65	37·97	95·70	34·93	25·79	Meerut, 12 months - - - - -	10
Q „ „ - -	109	59	—	—	2·80	541·3	—	—	25·69	9·38	17·32	Sialkot, 9 months (left for England on 5th October 1895).	14
S „ „ - -	147	193	1	3	15·37	1312·9	6·80	20·41	104·56	38·16	29·07	Secunderabad, 12 months - - - -	10
2nd Field Battery, R.A. -	153	141	1	3	8·25	921·6	6·54	19·61	53·92	19·68	21·36	Dinapore, 8¼ months; marching, 3¼ months -	14
5th „ „ -	161	96	1	4	8·82	596·3	6·21	24·84	54·78	20·00	33·53	Bangalore, 12 months - - - - -	12
6th „ „ -	151	163	4	6	8·97	1072·8	26·49	39·74	59·40	21·68	20·21	Saugor 11½ months; marching, ½ month - -	4
8th „ „ -	146	218	4	11	16·14	1493·2	27·40	75·34	110·55	40·35	27·02	Jhansi, 10½ months; marching, 1½ months - -	14

Corps.	Average Annual Strength.	Admitted into Hospital.	Deaths in the Command.	Invalided.	Average Number Constantly Sick.	Ratio per 1,000 of Strength.				Sick to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Years of Service in India.
						Admissions into Hospital.	Deaths.	Invalids.	Constantly Sick.	Average Time			
										days.	days.		
ARTILLERY—*cont.*													
9th Field Battery, R.A.	150	131	1	4	9·69	873·3	6·67	26·67	64·60	23·58	27·00	Agra, 10½ months; marching, 1½ months	12
10th „ „	149	220	2	—	13·56	1476·5	13·42	—	91·01	33·22	22·50	Rawal Pindi, 11½ months; Campbellpore, ½ month	11
15th „ „	131	181	1	—	10·23	1381·7	7·63	—	78·09	28·50	20·63	Campbellpore 12 months	8
17th „ „	153	237	8	6	18·37	1549·0	52·29	39·22	120·07	43·82	28·29	Jubbulpore, 11½ months; marching, ½ month	12
21st „ „	151	151	2	2	12·63	1000·0	13·25	13·25	83·64	30·53	30·53	Bangalore, 12 months	10
22nd „ „	160	229	1	4	14·70	1431·3	6·25	25·00	91·88	33·53	23·43	Nasirabad, 11½ months; marching, ½ month	9
23rd „ „	169	169	4	3	12·77	1000·0	23·67	17·75	75·56	27·58	27·56	St. Thomas' Mount, 12 months	4
24th „ „	143	280	3	22	16·40	1958·0	20·98	153·85	114·69	41·86	21·38	Mian Mir, 11 months; marching, 1 month	5
26th „ „	153	145	2	3	11·30	947·7	13·07	19·61	73·86	26·96	28·44	Kamptee, 12 months	12
27th „ „	151	270	—	4	15·34	1788·1	—	26·49	101·59	37·08	20·74	Kirkee, 10½ months; marching, 1½ months	8
29th „ „	158	155	—	3	13·83	981·0	—	18·99	87·53	31·95	32·57	Belgaum, 12 months	2
31st „ „	142	200	3	4	10·66	1408·5	21·13	28·17	75·07	27·40	19·45	Cawnpore, 9½ months; Mian Mir, ½ month; marching, 2 months.	7
33rd „ „	149	133	2	6	13·32	885·9	13·42	40·27	89·40	32·63	36·83	Secunderabad, 12 months	4
34th „ „	147	166	1	4	10·74	1129·3	6·80	27·21	73·06	26·67	23·63	Meerut, 12 months	5
39th „ „	144	272	1	9	16·25	1888·9	6·94	62·50	112·85	41·19	21·81	Ahmedabad, 3 months; Deesa, 9 months	7
36th „ „	158	199	1	2	13·57	1259·5	6·33	12·66	85·89	31·35	24·89	Kirkee, 10½ months; Mhow, ½ month; marching, 1 month.	8

Corps.	Average Annual Strength.	Admitted into Hospital.	Deaths in the Command.	Invalided.	Average Number Constantly Sick.	Ratio per 1,000 of Strength.				Sick each Time to Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Years of Service in India.
						Admissions into Hospital.	Deaths.	Invalids.	Constantly Sick.				
ARTILLERY—*cont.*										days.	days.		
39th Field Battery, R.A. -	154	222	4	7	13·40	1441·6	25·97	45·45	87·01	31·76	22·03	Fyzabad, 10½ months; marching, 1½ months -	14
40th „ „ -	164	142	4	3	10·03	865·9	24·39	18·29	61·16	22·32	25·78	Kirkee, 1½ months; Ahmednagar, 10½ months; marching, ½ month.	2
41st „ „ -	30	99	—	—	2·95	3300·0	—	—	98·33	35·89	10·88	Barrackpore, 2½ months (arrived from England on 20th October 1895).	—
42nd „ „ -	156	145	—	3	10·99	929·5	—	19·23	70·45	25·71	27·66	Secunderabad, 12 months - - - -	9
43rd „ „ -	111	196	6	6	11·46	1765·8	54·05	54·05	103·24	37·68	21·34	Barrackpore, 9 months (left for England on 5th October 1895).	14
44th „ „ -	140	348	4	4	13·72	2485·7	28·57	28·57	98·00	35·77	14·39	Neemuch, 11½ months; Mhow, ½ month; marching, ½ month.	15
45th „ „ -	158	158	—	7	15·43	1000·0	—	44·30	97·66	35·65	35·65	Bellary, 12 months - - - - -	2
46th „ „ -	154	327	3	18	17·35	1889·6	19·48	116·88	112·66	41·12	21·76	Mian Mir, 12 months; Dett. Dalhousie, 12 months	5
47th „ „ -	149	291	1	11	12·01	1953·0	6·71	73·83	80·60	29·42	15·06	Karachi, 3 months; Hyderabad, 8½ months; marching, ½ month.	4
48th „ „ -	134	168	—	5	10·53	1253·7	—	37·31	78·58	28·68	22·88	Bareilly, 11½ months; marching, ½ month - -	8
49th „ „ -	163	111	2	5	5·80	681·0	12·27	30·67	35·58	12·99	19·07	St. Thomas' Mount, 12 months - - -	4
50th „ „ -	152	295	2	2	17·88	1940·8	13·16	13·16	117·63	42·94	22·12	Jullundur, 12 months; Dett. Dalhousie, 12 months	9
51st „ „ -	149	165	—	6	10·46	1107·4	—	40·27	70·20	25·62	23·14	Meerut, 12 months - - - - -	5
53rd „ „ -	163	589	4	1	14·85	3613·5	24·54	6·13	91·10	33·25	9·20	Karachi, 12 months - - - - -	9
54th „ „ -	151	218	—	4	13·28	1443·7	—	26·49	87·95	32·10	22·23	Allahabad, 10½ months; marching, 1½ months -	5
55th „ „ -	141	340	4	7	18·61	2411·3	28·37	49·65	131·99	48·17	19·98	Deesa, 3½ months; Ahmedabad, 8½ months -	7

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						Admissions into Hospital.	Deaths.	Invalids.	Constantly Sick.				
										days.	days.		
ARTILLERY—*cont.*													
59th Field Battery, R.A.	153	289	1	9	19·35	1888·9	6·54	58·82	126·47	46·16	24·44	Nowgong, 10½ months; marching, 1½ months	11
60th „ „	149	192	1	3	10·86	1288·6	6·71	20·13	72·89	26·60	20·65	Multan, 12 months	9
65th „ „	155	301	1	3	11·83	1941·9	6·45	19·35	76·32	27·86	14·35	Neemuch, 11½ months; Mhow, ½ month; marching, ¾ month.	15
68th „ „	136	235	6	—	9·84	1727·9	44·12	—	72·35	26·41	15·28	Peshawar, 10½ months; Campbellpore, ¾ month; marching, ¾ month.	14
70th „ „	143	205	5	11	16·37	1433·6	34·97	76·92	114·48	41·78	29·15	Lucknow, 11½ months; marching, ½ month	9
71st „ „	149	302	3	—	14·32	2026·8	20·13	—	96·11	35·08	17·31	Ferozepore, 12 months	8
72nd „ „	144	280	2	5	15·74	1944·4	13·89	34·72	109·31	39·89	20·52	Kirkee, 12 months	7
No. 1 Mountain Battery, R.A.	99	118	2	—	5·68	1191·9	20·20	—	57·37	20·94	17·57	Jutogh, 7 months; marching, 5 months	12
„ 2 „ „ „	100	110	1	2	6·39	1100·0	10·00	20·00	63·90	23·32	21·20	Jutogh, 7 months; marching, 5 months	9
„ 3 „ „ „	48	62	—	1	4·19	1291·7	—	20·83	87·29	31·86	24·67	Rawal Pindi, 6 months (with Chitral Relief Force, 6 months).	17
„ 5 „ „ „	105	155	1	3	10·21	1476·2	9·52	28·57	97·24	35·49	24·04	Quetta, 12 months	17
„ 6 „ „ „	88	185	3	7	12·73	2102·3	34·09	79·55	144·66	52·80	25·12	Darjeeling, ½ month; Mandalay, 11½ months; marching, ½ month.	10
„ 7 „ „ „	100	147	1	3	9·25	1470·0	10·00	30·00	92·50	33·76	22·97	Mandalay, ¾ month; Rawal Pindi, 4 months; Kalabagh, 5 months; marching, 2½ months.	9
„ 8 „ „ „	52	92	—	—	5·18	1769·2	—	—	99·62	36·36	20·55	Rawal Pindi, 6½ months (with Chitral Relief Force 5½ months).	8
„ 9 „ „ „	101	47	1	1	3·25	465·3	9·90	9·90	32·18	11·75	25·24	Darjeeling, 11½ months; marching, ¾ month	11
No. 1 Co., Eastern Div., R.A.	124	272	3	5	14·08	2193·5	24·19	40·32	113·55	41·45	18·89	Delhi, 11½ months; Bombay, ½ month; marching, ½ month.	7

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						Admissions into Hospital.	Deaths.	Invalids.	Constantly Sick.				
										days.	days.		
ARTILLERY—*cont.*													
No. 3 Co., Eastern Div., R.A.	140	150	1	3	11·15	1071·4	7·14	21·43	79·64	29·07	27·13	Bombay, 12 months	1
„ 4 „ „	152	158	2	8	6·54	1197·0	15·15	60·61	40·55	18·06	15·11	Madras, 12 months	7
„ 8 „ „	110	212	1	3	15·28	1927·3	9·09	27·27	138·91	50·70	26·31	Fort Pulta, 2¾ months; Calcutta, 9¼ months	8
„ 9 „ „	1	4	2	—	·04	4000·0	2000·00	—	40·00	14·60	3·65	Arrived from England on the 30th December 1895	—
„ 12 „ „	89	115	—	—	5·71	1292·1	—	—	64·16	23·42	18·12	Campbellpore, 11½ months; Dett. Thobba, 6 months (arrived from England on the 10th January 1895).	1
„ 13 „ „	118	181	2	2	13·02	1533·9	16·95	16·95	110·34	40·27	26·26	Rawal Pindi, 10 months; Barrackpore, ¾ month; Fort Chingrikhal, 1 month; marching, ½ month.	9
„ 21 „ „	3	2	—	—	·10	666·7	—	—	33·33	12·17	18·25	Bombay, ¼ month (left for Gibraltar 14th January 1895).	13
„ 22 „ „	1	—	1	1	·06	—	1000·00	1000·00	60·00	21·90	—	Multan, 4 days (left for Gibraltar on 5th January 1895).	13
„ 23 „ „	107	134	3	12	10·93	1252·3	28·04	112·15	102·15	37·28	29·77	Aden, 10 months (left for Gibraltar on 8th November 1895).	11
„ 24 „ „	133	172	3	1	9·99	1293·2	22·56	7·52	75·11	27·42	21·20	Bombay, 12 months (arrived from Gibraltar on 2nd January 1895).	1
„ 26 „ „	129	146	—	3	9·76	1131·8	—	23·26	75·66	27·02	24·40	Roorkee, 11¾ months; marching, ¼ month	1
No. 3 Co., Southern Div., R.A.	122	142	2	9	8·53	1163·9	16·39	73·77	69·92	25·52	21·93	Aden, 12 months	14
„ 5 „ „	126	180	3	1	11·59	1428·6	23·81	7·94	91·98	33·57	23·50	Fort Attock, 3¼ months; Thobba, 5¼ months; Rawal Pindi, 2½ months; marching, ½ month.	8
„ 7 „ „	137	214	1	1	12·55	1562·0	7·30	7·30	91·61	33·44	21·41	Quetta, 12 months	10
„ 9 „ „	126	124	2	7	9·94	984·1	15·87	55·56	78·89	28·79	29·25	Aden, 12 months	8
„ 11 „ „	118	174	1	5	12·03	1474·6	8·47	42·37	101·95	37·21	25·24	Delhi, ½ month; Rangoon 11½ months; marching ½ month.	6

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						Admissions into Hospital.	Deaths.	Invalids.	Constantly Sick.				
										days.	days.		
ROYAL ARTILLERY—*cont.*													
No. 18 Co., Southern Div., R.A.	127	201	1	2	11·53	1582·7	7·87	15·75	90·79	33·14	20·94	Rangoon, ¾ month; Ferozepore, 11 months; marching, ½ month.	6
„ 21 „ „ -	115	117	4	6	8·80	1017·4	34·78	52·17	76·52	27·93	27·45	Fort Allahabad, 9½ months; Aden, 1¾ months; marching, 1 month.	6
„ 23 „ „ -	135	155	1	3	12·70	1148·1	7·41	22·22	94·07	34·34	29·91	Bombay, 12 months - - - - -	1
„ 24 „ „ -	83	136	2	2	8·48	1638·6	24·10	24·10	102·17	37·29	22·76	Campbellpore, ½ month; Multan, 11½ months -	8
„ 28 „ „ -	138	189	1	1	11·24	1369·6	7·25	7·25	81·45	29·73	21·71	Quetta, 12 months - - - - -	12
No. 4 Co., Western Div., R.A.	124	172	3	—	14·83	1387·1	24·19	—	119·60	43·65	31·47	Roorkee, 11½ months; marching, ½ month - -	1
„ 5 „ „ -	113	257	5	9	13·26	2274·3	44·25	79·65	117·35	42·83	18·83	Fort Chingrikhal, 1¾ months; Barrackpore, 8¾ months; Fort Attock, 1½ months; marching, ½ month.	3
„ 7 „ „ -	94	93	1	1	8·68	989·4	10·64	10·64	92·34	33·70	34·07	Secunderabad, 12 months - - - -	1
„ 9 „ „ -	95	108	—	1	7·90	1136·8	—	10·53	83·16	30·35	26·70	Jhansi, 11¾ months; marching, ¼ month - -	1
„ 11 „ „ -	142	252	1	2	9·86	1774·6	7·04	14·08	69·44	25·34	14·28	Karachi, 12 months - - - - -	8
„ 16 „ „ -	121	185	4	6	14·48	1528·9	33·06	49·59	119·67	43·68	28·57	Agra, 11 months; Bombay, ½ month; marching, ¾ month.	8
„ 18 „ „ -	136	213	6	5	14·30	1566·2	44·12	36·76	105·15	38·38	24·50	Rangoon, 12 months - - - - -	1
„ 22 „ „ -	124	154	3	2	10·30	1241·9	24·19	16·13	83·06	30·32	24·41	Roorkee, 11 months; marching, 1 month - -	10
Total - -	11,974	16,916	182	375	1038·13	1412·7	15·20	31·32	86·70	31·65	22·40		

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						Admissions into Hospital.	Deaths.	Invalids.	Constantly Sick.	Average Time to			
										days.	days.		
ROYAL ENGINEERS.													
H. Company, Royal Engineers	117	63	5	3	2·50	538·5	42·74	25·64	21·37	7·80	14·48	Calcutta, Allahabad, Roorkee, Bangalore, Secunderabad, Rangoon, Kirkee, Bombay, Karachi.	28
INFANTRY.													
1st Royal Scots - -	1,035	1,228	6	40	101·81	1186·5	5·80	38·65	98·37	35·90	30·26	Belgaum, 9 months; Mandalay, 3 months - -	3
1st Royal West Surrey Regiment.	840	1,506	20	—	85·69	1792·9	23·81	—	102·01	37·23	20·77	Umballa, 10¾ months (arrived from Malta on the 10th February 1895). Dett. Ferozepore, 7 months; Nowshera, 5 months; Dagshai, 2 months; Fort Attock, 2½ months.	—
1st East Kent Regiment -	608	1,096	14	16	63·60	1802·6	23·03	26·32	104·61	38·18	21·18	Jullundur, 3 months; Peshawar, 3½ months (with Chitral Relief Force, 5⅔ months). Dett. Nowshera, 1½ months.	8
2nd Royal Lancaster Regiment.	959	1,548	13	11	80·91	1614·2	13·56	11·47	84·37	30·79	19·08	Nasirabad, 11⅔ months (left for England on the 23rd December 1895). Dett. Neemuch, 11⅔ months.	15
2nd Northumberland Fusiliers	133	196	2	12	14·17	1473·7	15·04	90·23	106·54	38·89	26·39	Sitapur, 1⅓ months (left for Singapore on the 22nd February 1895); Wing, Benares, 1⅓ months.	15
1st Royal Fusiliers - -	940	2,964	18	34	105·17	3153·2	19·15	36·17	111·88	40·84	12·95	Karachi, 10 months; Mhow, 2 months. Detts. Hyderabad, 9½ months; Indore, 2 months.	8
1st Norfolk Regiment - -	963	1,179	6	31	93·41	1224·3	6·23	32·19	97·90	35·40	28·92	Umballa, 3⅔ months; Dagshai, 7⅓ months; marching, 1 month.	6
1st Devonshire Regiment -	1,029	1,382	23	12	74·02	1344·4	27·24	11·67	72·00	26·28	19·55	Nowshera, 2½ months; Peshawar, 9½ months. Detts. Fort Attock, 3½ months; Chenat, 7 months.	3
2nd Suffolk Regiment - -	1,036	1,164	18	20	83·36	1123·6	17·37	19·31	80·46	29·37	26·14	Secunderabad, 9½ months; Rangoon, 2½ months; marching, ½ month; Dett. Wellington, 12 months; Port Blair, 2½ months.	4

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						Admissions into Hospital.	Deaths.	Invalids.	Constantly Sick.	Average Time to each Soldier.	Average Duration of each Case of Sickness.		
INFANTRY—*cont.*										days.	days.		
1st Somersetshire Light Infantry.	999	1,071	6	17	76·69	1072·1	6·01	17·02	76·77	28·02	26·14	Umballa, 2⅔ months; Subathu, 7⅓ months; Mian Mir, 1 month; marching, 1 month; Dett. Jutogh, 7½ months.	2
2nd West Yorkshire Regiment	550	870	13	13	48·19	1581·8	23·64	23·64	87·62	31·98	20·22	Aden, 10½ months (left for England on the 9th November 1895).	17
1st East Yorkshire Regiment	59	67	—	—	1·61	1135·6	—	—	27·29	9·96	8·77	Belgaum, ½ month; marching, ½ month (arrived from Egypt on the 6th December 1895).	—
1st Bedfordshire Regiment	641	939	14	12	49·85	1464·9	21·84	18·72	77·77	28·39	19·38	Peshawar, 3 months; Rawal Pindi, ½ month; Kuldana, 2½ months; Umballa, ½ month; marching, 1½ months (with Chitral Relief Force, 4⅓ months); Dett. Cherat, 7 months; Kuldana, 2 months; Bara Gali, 2 months.	5
2nd Royal Irish Regiment	958	1,572	18	24	94·92	1640·9	18·79	25·05	99·08	36·16	22·04	Jubbulpore, 12 months; Dett. Saugor, 12 months	10
2nd Yorkshire Regiment	910	1,415	4	22	88·35	1554·9	4·40	24·18	97·09	35·44	22·79	Shwebo, 12 months; Detts. at Bhamo, 12 months; Bernardmyo, 12 months.	5
2nd Lancashire Fusiliers	963	1,787	12	30	98·05	1855·7	12·46	31·15	101·82	37·16	20·03	Quetta, 12 months	14
2nd Royal Scots Fusiliers	914	1,327	12	8	57·86	1451·9	13·13	8·75	63·24	23·08	15·90	Sialkot, 12 months; Detts. Amritsar, 12 months; Ghora Dhaka, 3½ months.	13
1st Cheshire Regiment	946	1,242	7	42	94·52	1312·9	7·40	44·40	99·92	36·47	27·78	Bellary, 12 months; Detts. Madras, 12 months; Ramandroog, 3½ months.	8
1st Royal Welsh Fusiliers	995	2,042	15	34	138·00	2052·3	15·08	34·17	138·69	50·62	24·67	Jhansi, 12 months; Wing, Nowgong, 12 months	15
2nd King's Own Scottish Borderers.	596	1,093	10	13	73·61	1833·9	16·78	21·81	123·51	45·08	24·58	Rawal Pindi, 5 months (with Chitral Relief Force, 7 months); Dett. Kuldana, 4 months.	5
1st Scottish Rifles	930	1,483	15	33	95·48	1594·6	16·13	35·48	102·67	37·47	23·50	Shahjahanpur, 1⅔ months; Chaubuttia, 7⅔ months; Bareilly, 2 months; marching, ½ month (arrived from England on the 9th January 1895).	1
2nd Scottish Rifles	20	23	—	6	6·59	1150·0	—	300·00	329·50	120·27	104·58	Jubbulpore, 4 days (left for England on the 5th January 1895).	15

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						Admissions into Hospital.	Deaths.	Invalids.	Constantly Sick.	Average Time			
INFANTRY—*cont.*										days.	days.		
2nd Royal Inniskilling Fusiliers.	911	1,390	6	26	87·18	1525·8	6·59	28·54	95·70	34·93	22·89	Thayetmyo, 12 months; Wing, Meiktila, 12 months; Dett. Meerut, 1¾ months.	7
1st Worcestershire Regiment	832	1,088	12	14	69·94	1307·7	14·42	16·83	84·06	30·68	23·46	Rangoon, 9 months; Aden, 2 months; marching, 1 month; Dett. at Port Blair, 9¼ months.	16
1st East Lancashire Regiment	535	1,044	19	25	81·98	1951·4	35·51	46·73	153·23	55·93	28·66	Lucknow, 7 months (with Chitral Relief Force, 5 months).	15
1st East Surrey Regiment -	1,008	1,303	18	33	99·06	1292·7	17·86	32·74	98·27	35·87	27·75	Agra, 12 months - - - - - -	10
1st Duke of Cornwall's Light Infantry.	1,003	1,117	14	5	81·02	1113·7	13·96	4·99	80·78	29·48	26·47	Meerut, 3½ months; Chakrata, 7½ months; marching, ¾ month.	7
2nd Border Regiment - -	821	1,243	13	16	91·06	1514·0	15·83	19·49	110·91	40·48	26·74	Multan, 9½ months; marching, ¼ month (on Field Service, Waziristan, 2½ months); Dett. Dalhousie, 12 months.	5
2nd Royal Sussex Regiment -	991	1,306	26	23	86·92	1378·4	26·24	23·21	87·71	32·01	23·23	Calcutta, ¼ month; Dum Dum, 10 months; Fyzabad, ¾ month; marching, 1¼ months; Dett. Barrackpore, 10 months.	10
1st Hampshire Regiment -	1,015	1,197	10	24	86·04	1179·3	9·85	23·65	84·77	30·94	26·24	Bareilly, 4 months; Ranikhet, 7¾ months; marching, ¼ month.	9
2nd South Staffordshire Regiment.	148	154	1	—	7·45	1040·5	6·76	—	50·34	18·37	17·66	Wellington, 2 months (arrived from Egypt on the 28th October 1895); Detts. Malapuram, 2 months; Cannanore, 2 months; Calicut, 2 months.	—
1st Dorsetshire Regiment -	1,007	1,212	8	25	72·87	1203·6	7·94	24·83	72·36	26·41	21·95	Wellington, 10 months; Bangalore, 2 months; Detts. Malapuram, 10 months; Calicut, 10 months.	2
2nd South Lancashire Regiment.	819	867	12	6	54·34	1058·6	14·65	7·33	66·35	24·22	22·88	Kamptee, 9½ months (arrived from Egypt on the 7th March 1895).	—
2nd Welsh Regiment - -	985	1,639	7	33	127·12	1664·0	7·11	33·50	129·06	47·11	28·31	Secunderabad, 12 months; Dett. Wellington, 12 months.	3
2nd Oxfordshire Light Infantry	958	1,367	11	14	93·00	1426·9	11·48	14·61	97·08	35·43	24·83	Bareilly, 12 months; Dett. Ranikhet, 7 months -	9

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						Admissions into Hospital.	Deaths.	Invalids.	Constantly Sick.	Average Time to Soldier.			
INFANTRY—*cont.*										days.	days.		
2nd Essex Regiment - -	1,063	1,109	18	29	104·07	1243·3	16·93	27·28	97·90	35·73	34·25	Lucknow, 12 months; Dett. Ranikhet, 7½ months; Chakrata, 6½ months.	3
2nd Derbyshire Regiment -	960	1,393	19	28	92·12	1451·0	19·79	29·17	95·96	35·02	24·14	Umballa, 1½ months; Sitapur, 10½ months; Wing, Benares, 10½ months.	13
1st Loyal North Lancashire Regiment.	936	1,684	13	13	105·02	1799·1	13·89	13·89	112·84	41·19	22·89	Poona, 12 months - - - - -	11
1st Northamptonshire Regiment.	1,010	806	3	33	56·05	798·0	2·97	32·67	55·50	20·26	25·38	Bangalore, 10½ months; marching, 1½ months -	3
1st Royal West Kent Regiment	965	1,909	23	17	111·85	1978·2	23·83	17·62	115·91	42·31	21·39	Meerut, 12 months; Detts. Delhi, 12 months; Chakrata, 6½ months.	3
2nd King's Own Yorkshire Light Infantry.	924	1,399	7	23	112·46	1514·1	7·58	24·89	121·71	44·42	29·34	Poona, 11¾ months; Mhow, ¼ month - -	8
1st Shropshire Light Infantry	934	1,561	16	8	103·46	1671·3	17·13	8·57	110·77	40·43	24·19	Calcutta, 11¾ months (arrived from Hong Kong on the 8th January 1895); Dett. Dum Dum, 9 months.	1
2nd Middlesex Regiment -	939	1,158	10	12	63·11	1233·2	10·65	12·78	67·21	24·53	19·89	Ahmednagar, 12 months; Detts. Kirkee, 12 months; Satara, 12 months.	15
1st King's Royal Rifle Corps -	692	922	8	14	50·90	1332·4	11·56	20·23	73·55	26·85	20·15	Peshawar, 3 months; Jullundur, 3½ months (with Chitral Relief Force, 5¾ months); Dett. Peshawar, 6 months.	5
1st Wiltshire Regiment - -	206	535	2	—	18·53	2597·1	9·71	—	89·95	32·83	12·64	Karachi, 2¾ months (arrived from Aldershot on the 7th October 1895).	—
2nd Wiltshire Regiment -	742	942	5	34	72·65	1269·5	6·74	45·82	97·91	35·74	28·15	Mandalay, 9 months (left for England on the 4th October 1895).	14
2nd Manchester Regiment -	983	1,346	14	15	91·51	1369·3	14·24	15·26	93·09	33·98	24·82	Dinapore, 12 months; Dett. Darjeeling, 12 months	13
2nd Durham Light Infantry -	965	1,597	11	14	105·81	1658·4	11·42	14·54	109·88	40·10	24·18	Mhow, 12 months; Dett. Indore, 12 months -	9
2nd Highland Light Infantry	1,007	1,333	20	25	89·17	1323·7	19·86	24·83	88·55	32·32	24·42	Fyzabad, 9½ months; Cawnpore, 2 months; marching, ¾ month; Detts. Fatehgarh, 2 months; Ranikhet, 7 months; Chakrata, 6 months.	11

Corps.	Average Annual Strength.	Admitted into Hospital.	Deaths in the Command.	Invalided.	Average Number Constantly Sick.	Ratio per 1,000 of Strength.				Sick Time to each Soldier.	Average Duration of each Case of Sickness.	Stations occupied during the Year.	Years of Service in India.
						Admissions into Hospital.	Deaths.	Invalids.	Constantly Sick.				
INFANTRY—*cont.*										days.	days.		
2nd Seaforth Highlanders -	695	1,573	6	27	80·49	2263·3	8·63	38·85	115·81	42·27	18·68	Ferozepore, 12 months - - - -	16
1st Gordon Highlanders -	604	780	9	14	56·51	1291·4	14·90	23·18	93·56	34·15	26·44	Rawal Pindi, 5 months (with Chitral Relief Force, 7 months); Dett. Gharial, 6 months.	3
2nd Royal Irish Rifles - -	902	1,298	8	7	81·99	1439·0	8·87	7·76	90·90	33·18	23·06	Bombay, 12 months; Dett. Deesa, 12 months; Ahmedabad, 12 months.	1
1st Royal Irish Fusiliers -	894	1,506	10	29	102·09	1684·6	11·19	32·44	114·19	41·68	24·74	Allahabad, 12 months; Dett. Fort Allahabad, 12 months.	12
2nd Argyll and Sutherland Highlanders.	928	2,848	17	47	131·27	3069·0	18·32	50·65	141·45	51·63	16·82	Mian Mir, 10 months; Nowshera, 1¾ months; marching, ¼ month; Dett. Dalhousie, 6 months; Fort Lahore, 11 months.	4
2nd Royal Munster Fusiliers -	987	1,462	9	27	93·08	1481·3	9·12	27·36	94·31	34·42	23·24	Cawnpore, 10 months; Dum Dum, ¼ month; marching, 1¾ months; Dett. Fatehgarh, 9¾ months; Ranikhet, 7 months; Solon, 5 months.	11
2nd Royal Dublin Fusiliers -	985	1,503	7	29	94·40	1525·9	7·11	29·44	95·84	34·98	22·92	Quetta, 12 months - - - - -	9
3rd Rifle Brigade - -	960	1,421	12	10	91·71	1480·2	12·50	10·42	95·53	34·87	23·56	Rawal Pindi, 12 months; Dett. Gharial, 4¾ months	6
Total - -	47,335	72,266	655	1,129	4572·63	1526·7	13·84	23·85	96·60	35·26	23·10		
Garrison Staff and Departments.	3,394	3,777	25	36	300·57	1112·8	7·37	10·61	88·56	32·32	29·05	Various station hospitals.	
Men of various Corps, marching.	72	14	3	—	3·21	194·4	41·67	—	44·58	16·27	83·69	Various station hospitals.	
Grand Total - -	68,331	99,766	942	1,663	6396·35	1460·0	13·79	24·34	93·61	34·17	23·40		

To those engaged in the active practice of preventive medicine the subject of tuberculosis and its prevention must always be a matter of the greatest importance. For this translation of Nocard's authoritative work Dr. Scurfield deserves the thanks of all those engaged in scientific medicine. The volume is chiefly remarkable for the demonstration of the small part played by heredity, and the great part played by contagion in the propagation of bovine tuberculosis. It is not unreasonable to suppose that the same is the case as regards human tuberculosis, an inference which bacteriology and later clinical research seems to justify.

The Education of the Body in Youth. By Angelo Mosso of Turin. Translated from the Italian by Johanna Glinzer. Hamburg: Leopold Voss. 1894.

This book contains much information which should prove of interest to the army surgeon. The book is notable for its critical analysis of the body training afforded in the gymnasia of the continent. The author's general verdict upon gymnastic exercises as conducted abroad is that they are wearisome and slow, with few compensating advantages. His criticisms of military gymnastic training and of cadet corps are eminently sound; of these latter he remarks it is useless to pretend to develop the physique of young men and imbue them with an ardour for military life and duties by a parody of military exercises; far better let them learn to fence, play cricket, foot-ball, tennis, row, swim, and ride, whereby the whole of their muscles are exercised with a freedom and independence quite unattainable otherwise. In speaking of the physical training of soldiers, the author is plainly in favour of systematic exercises in marching.

The Housing of the Working Classes. By E. Bowmaker. London: Methuen & Co. 1895.

This is a handy, accurate, carefully-arranged and up-to-date book upon a subject concerning which many sanitary officers have a difficulty in gaining information. Though hardly coming within the range of the daily work of the army surgeon, the subject is one which must be worked up by those contemplating the taking of a public health diploma, and as many military medical officers present themselves for these sanitary examinations the perusal of this book is well worth their while.

The Theory and Practice of Hygiene. By Professor J. Lane Notter and Surgeon-Major R. H. Firth. London: Churchill & Co. 1896.

This book is practically Dr. E. A. Parke's well-known manual re-written and re-arranged. The original book has been so much altered that this volume is really a new work. Every effort has been made to bring the subject-matter well up to date, so that the book in its new form constitutes a complete text-book not only for those engaged in the naval and military medical services, but for those employed in public health work generally.

Public Health in European Capitals. By T. M. Legge, M.D. London: Swan Sonnenschein & Co.

The author's unique knowledge of the sanitary administration of continental cities and towns renders this small book of the greatest value to those interested in the many problems embraced under the heading of sanitary science. While many European towns are behind us in this country in respect of many sanitary details, there are others which are far in advance of any English town, and which it behoves us to follow as examples. This is notably so in the case of Berlin, where the sewage disposal by irrigation and water supply are nearly perfect; its slaughter-houses and meat market leave nothing to be desired, while the newer hospitals under municipal control have no counterpart in England. Dr. Legge's book should be read by all working up the subject, as it gives in a compressed form information not otherwise readily obtained.

Les Malades Vénériennes dans les Armées Anglaise, Française, et Russe. By O. Commenge. Paris: G. Masson. 1895.

Although but a pamphlet, this work is an excellent summary of a difficult question. The figures given have been taken from official sources only, and clearly show that among soldiers venereal disease is more prevalent in countries where prostitution is free than where it is under legislative control. Thus in France and Russia there are four times fewer soldiers affected with venereal disease than in the garrison towns of England, the actual figures being for

England 201 per mille, for France and Russia each 44 per mille. If numbers for syphilis only be taken, the rate of affected is 33·8 per mille in England, 9·2 in France, and 13·7 in Russia. If we bear in mind how closely this subject is associated with the duties of the army medical officer. Dr. Commenge's pamphlet should be consulted by all medical men in military employ; it is full of facts, and supplemented by sound deductions therefrom.

Examination of Water for Sanitary and Technical Purposes. By H. Leffmann. Philadelphia: Blakiston and Son. 1895.

This is the third edition of a book to which I have alluded in previous reports. It has been brought up to date, and, unlike similar works of the kind, it deals with both the chemical and bacteriological examination of water. Considering the small compass of the book, justice is done to both aspects of the subject, much useful information being brought together which otherwise would have to be collected from varied sources. Its chief defect is that an attempt has been made to give a large number of available methods in outline rather than in a detailed description of a few. This feature is likely to render the book of less use to the student than to the expert.

Being written by a chemist, the chapters dealing with bacteriological methods are somewhat weak.

Rural Water Supply. By A. Greenhill and W. T. Curry. London: Lockwood & Son. 1896.

I believe this book is based on some very good articles by the same authors which appeared in *The Builder* in 1894. Although the book is really addressed rather to engineering than to medical readers, still it borders so closely upon the province of preventive medicine, notably in the discussion of such subjects as the filtration of water and the prevention of lead poisoning, that it is worth while for the medical officers to read other men's views. In no branch of life is this more so than in the army where the relations between the engineer and medical officers in the matter of sanitary details are necessarily intimate.

Water and Water Supplies. By J. C. Thresh, M.D. London: Rebman & Co. 1896.

In contrast to the preceding book we have here the views on the same subject by a medical man of great experience in public health work. Dr. Thresh gives a full and adequate account of everything appertaining to drinking water and water supply. The best portions of the work are those dealing with the interpretation of water analysis and those upon sources of supply, storage, and distribution. An important fact in respect to the first point, the author drives home well: it is that while a chemical or bacteriological certificate of purity in a water is worth practically nothing; on the other hand, a chemical or bacteriological proof that a water is bad is of great value. The whole book is a scholarly and complete treatise upon an important branch of public health work which all should read.

The Cause and Prevention of Cholera. By E. H. Hankin. Agra. 1895.

This pamphlet is familiar to most Indian readers, but possesses sufficient interest and originality to be read by others. The most interesting point Mr. Hankin brings forward is the statement of the alleged efficiency of permanganate of potash in disinfecting wells which have been infected by cholera. If the statements made in this pamphlet bear the test of extended experience, an undoubted advance will have been made in coping with the great scourge of India, and more especially in the management of local outbreaks.

Cholera in Indian Cantonments and how to deal with it. By E. H. Hankin. Allahabad: Pioneer Press. 1895.

We have here a book written primarily for the use of officials in India, but really of interest to a much wider circle. It gives the views in regard to the measures by which an outbreak of cholera may be best controlled by a trained bacteriologist who has lived in the country and who is thoroughly conversant with the habits of the disease. The author rightly lays great stress upon the facts that the cholera vibrio is not always virulent, and that comparatively slight differences in the chemical constitution of the water in which it lies are sufficient to either increase its virulence or to kill it, or to reduce it to a harmless condition.

These facts have been recognised in Europe for some time, and upon them is founded the teaching about the disinfection of wells by chemical means, and the view that the running water of great rivers, even in the presence of known infection, is in the majority of cases incapable of causing cholera. Mr. Hankin, dwelling upon the efficiency of acids in killing the vibrio, points out the value of acid drinks and aërated waters free from soda in cholera times. Although one may not accept in their entirety some of the author's theories and suggestions, still the book is so full of scientific evidence that it should be read by every Indian official. It will do good if it only brings home to the mind of everyone that there is really no need to run away from cholera, but that the only logical procedure is to fight it on the spot in the water and food supplies or their environment.

Leitfaden der Hygiene (Introduction to Hygiene). By Aug. Gärtner. Berlin: S. Karger. 1896.

Taking into consideration the fact that it consists of but 408 pages, this book may be described as one of the most complete text-books on hygiene which I know. The great drawback to it is that no English translation exists. The best chapters are those upon the influence of meteorological conditions on the animal functions, the effects of physical strata of the soil, the economics of industrial hygiene, and the bacteriology, propagation, and means of prevention of the infective diseases. These are all subjects which in the majority of English text-books are often weak and faulty. The chapter on food and dietetics closely follow the teachings of the Munich School and is fairly good. The sections on the disposal of sewage and on water analysis, on the other hand, are disappointing. To anyone who can read German this book is worth reading, and, if translated into English and judiciously edited so as to bring it up to date and to the needs of this country, might be found to fill a want.

Twenty-third Annual Report of the Local Government Board. Supplement, 1893–94.

Much good work has been done under the direction of the Local Government Board, and full reports of its officers have been published in this supplement. The inspectors working under the Board have reported upon a considerable number of localised outbreaks of enteric fever. Their reports indicate that in nearly every case grave faults have existed in respect to water or milk supplies; this is quite in accord with previous experiences. Amongst the number of enquiries instituted in connection with the prevalence of diphtheria one was of more than ordinary interest.

It has reference to an outbreak of disease in the Hinckley urban and rural districts. As a result of his investigations the inspector arrived at the conclusion that the water supply, the milk service, and the general arrangement of sewers and drains could not be held to have had concern with the outbreak. The disease was particularly prevalent in households of the working classes, where midden privies were in use. The impregnation of the soil around those structures appears to have exercised a marked influence on the fatality of the disease and in conferring susceptibility to its infection. The public elementary schools seem to have played the chief part in the dissemination of the disease. Although it is not quite clear how and where the first case arose, it is tolerably certain that from a number of cases of indefinite "sore throat" occurring in the households where midden privies were in use, a series of cases of sore throat, chemically and bacteriologically indistinguishable from diphtheria, gradually evolved.

A curious form of epidemic skin disease occurred in several Metropolitan workhouses in 1893. These outbreaks were investigated by Dr. Copeman for the Local Government Board. The disease bore a likeness both to pityriasis rubra and to acute general eczema, though for various reasons it could not be classed under either of these terms. The etiology of the disease was obscure; it was mainly confined to elderly persons in infirm health, and into whose dietary a considerable quantity of milk entered. No specific micro-organism could be identified as the actual *materies morbi*, but the balance of evidence clearly indicated that the disease primarily depended upon some as yet unrecognised condition present in the milk supply. This epidemic skin disease still calls for further study.

The mystery hitherto attaching to the question of the plumbo-solvent action of certain waters has to some extent been cleared up by the investigations of Messrs. Power and Houston upon the action of moorland waters on lead pipes. These observers have demonstrated that the lead-dissolving properties of a water are always associated with corresponding variations in the amount of its acidity. This acidity, in the case of moorland waters at least, is dependent upon bacterial activity in moist peat soil. Two species of microbe were found by Power and Houston to exist in peat, and to possess well-defined powers of producing acidity and of making waters plumbo-solvent.

Among the auxiliary scientific enquiries conducted for the Local Government Board may be mentioned those by Dr. Klein on the etiology of, and value of, protective inoculations against enteric fever and cholera. Dr. Klein's work indicates the negative value of experiments upon monkeys as to enteric fever, but that the tissues of the bovines appear to serve as to the multiplying grounds for the enteric bacillus. This latter fact is obviously one of considerable etiological importance and deserving of further elucidation.

Klein's further studies of protective inoculations suggest doubts as to the ability of a dead or much degenerated microbe to inhibit, when antecedently injected into the human subject, the physiological activities of the toxins of the same microbe. From this point of view the later experiments of India in the matter of anti-cholera inoculation must be awaited with considerable interest.

Some other work has been done by Dr. Klein concerning the etiology of cancer; the investigations made throw much doubt upon the value of statements as to the alleged existence of true parasitic causative agents in cancer. As regards vaccine lymph, no success has attended efforts to prove the identity between the bacilli found in vaccine and in small-pox matter.

Dr. S. Martin has continued his work as to the chemical pathology of tetanus, but is at present unable to make any precise statements.

III.—*Work of Societies.*

The British Medical Association held its annual meeting at Carlisle. The section of public medicine was presided over by Sir Joseph Ewart, M.D., who took for his subject, "The Lowering of the General Death-rate." He showed from a large number of carefully compiled statistics the marvellous reduction of the mortality in general from all causes, and also from some diseases still prevailing in a mitigated degree, as well as the more or less complete extinction of other maladies which formerly decimated the inhabitants of these islands. The experience already gained clearly indicates that the time is approaching when typhoid fever, consumption, scarlet fever, and many other diseases will be prevented with as much success as has attended the warfare against typhus fever, scurvy, plague, leprosy, malarious fever, cholera, &c.

Dr. J. G. Nasmyth opened a discussion on the medical profession and the public health service. He pointed out how evident it was that the State was becoming alive to the doctrine of prevention of disease among soldiers and sailors, as shown by the establishment of the Army Medical School, in which hygiene and the science of preventive medicine is taught. He discussed the question with special reference to the duties of the medical officer of health.

A very valuable paper on "The Public Health Aspects of Tuberculous Diseases" was contributed by Dr. Niven, Medical Officer of Health to the City of Manchester. He emphasised the necessity of a systematic examination of cows in all cowsheds, and the examination of the milk bacteriologically where the grounds for condemnation are otherwise not perfectly clear. All meat and pork should be thoroughly examined, hence no meat should be taken direct from a private slaughter-house for sale. The presence of tuberculous glands in meat or pork should suffice to condemn it. In the case of animals killed at the public abattoir this criterion is not required. It is the more necessary that it should be rigorously applied in other cases. Cats certainly, and fowls possibly, are a serious source of danger. More attention should be given to the diseases of which cats have died—and, indeed, the causes of deaths of all our domestic animals should be more fully investigated.

Dr. Sydney Marsden gave a very interesting paper on the "Seizure of Diseased Meat." He dwelt chiefly on tuberculosis in cattle, and stated as his opinion that not 10 per cent. of the cattle bought which afterwards prove to be tuberculous would not, if tried, give an experienced butcher good grounds for suspicion of their diseased condition. Dr. Marsden believes that the primary trouble begins with the farmer, and that he should not be allowed to rear animals in such a manner as to give them every possible chance of taking and perpetuating the disease by keeping his animals in too small, ill-ventilated, and often infected ship pens, and in many cases not taking the most elementary care with regard to the cleanliness of the animals, their lairage, or their feeding tubs, and in the case of milk cows by constant successive milking. For a remedy he suggests that whenever a carcase of a beast bought for over 8*l.* is seized for tuberculosis or other disease that the cost be equally divided, one-third part being paid by the farmer, one-third by the butcher, and one-third by the sanitary authority on behalf of the public.

Some very interesting experiments on the germicidal power of sulphurous acid when used as a disinfectant were given by Dr. H. Kenwood. He showed that when diphtheria bacillus was exposed to this gas in a room under the ordinary conditions of disinfection it was very markedly inhibited, even where the SO_2 did not much exceed ¼ per cent., and the bacillus was killed where the SO_2 exceeded ½ per cent., these figures having sole reference to the SO_2 in the air in the centre of the room at a height of 4 feet and after the lapse of four hours. In the face of these facts is it necessary to make a change, Dr. Kenwood asks, and, if so, is one of the Continental methods preferable to the employment of a gaseous disinfectant?

In France the official method is to moisten walls, floors, and whatever cannot be removed from the room and taken to the disinfecting station by means of a spray of a 1 in 1,000 solution of the perchloride of mercury. The spray is produced by a portable force pump fitted with a long nozzle, and the apparatus is called a "pulverisateur." The operation of disinfecting a room occupies only one hour.

The German official method is to rub down the walls with bread: ordinary German loaves 48 hours old are employed, cut into pieces 6 inches square, with the crust at the back to afford a firm hold. The crumbs having been swept and burnt, the walls and ceilings are thoroughly sprinkled with a weak carbolic solution and the floors and furniture are washed in this solution. The great advantage of our method lies in the fact, as Dr. Kenwood points out, that the work cannot be skimped and that the regulation amount of sulphur is used, especially when tubes of liquified SO_2 are employed, and that the room cannot again be used until abundance of fresh air has blown through. The method is simple, cannot be skimped, necessitates the exposure of the room to abundance of fresh air, and the actual disuse of the room for many hours.

Disinfection by chlorine, formaldehyde, and vapourised carbolic, are all good and would also meet these requirements, but there is evidence that the first two are more efficient than SO_2. The advantage of using sulphur dioxide as a superficial disinfectant was fully borne out by experiments.

The soil in relation to diphtheria and its organism was the subject of a very interesting and instructive paper by Dr. Gordon Sharp. From a number of analyses and from careful bacteriological examinations, he came to the following conclusions:—

Diphtheria would appear to be epidemic in certain districts. Soils organically laden are dangerous, but much may depend on the nature of the sub-soil. Where the sub-soil is porous a neighbourhood may be free, but where the sub-soil is impervious the surface at certain seasons of the year may be a favourable breeding ground. Soils which would otherwise be sources of the spread of diphtheria are rendered innocuous by deep drainage. The presence of a large quantity of air in the surface soil appears to be salutary.

Dr. Sharp states as the result of his experiments, that immersion in water for a short time seems fatal to the microbe of diphtheria, while the contrary holds with regard to the organism of enteric fever; both seem to live in sewage. This corroborates our experiments at Netley, which goes to show that the fate of the diphtheria bacillus in water is early extinction. A moist rather than a water-laden soil seems to be the home of the organism of diphtheria.

The Fifteenth Congress of the Sanitary Institute was held in Newcastle from September 2nd to September 7th. H.R.H. the Duke of Cambridge, the President, opened the Congress and introduced the Earl Percy, who, as Chairman of the meeting, gave an able address upon the economic influences of the work of the Sanitary Institute and allied associations as exemplified in the daily life and work of the inhabitants of large industrial towns. The Sanitary Science and Preventive Medicine section was presided over by Professor Corfield, who devoted his address to an analysis and review of the important subject of the teaching of public health. Practically the address resolved itself largely into an eulogium of the work done by my predecessors in the chair of military hygiene at Netley, and that done by their pupils now scattered all over the world in the public medical services received full commendation. The section of Engineering and Architecture was presided over by Sir Andrew Noble. Both his address and the various papers read in the section were of a high order, but had little practical reference to pure medicine. Mr. Dines' address as President of the section on Chemistry, Meteorology, and Geology was a masterly summary of the various causes which produce climate and its effect upon the average length of life. It is true he was unable to bring forward any startling new facts, but as a *résumé* of an interesting subject, Mr. Dines' paper is well worth the study of men in military employ.

An interesting paper was given by Mr. Holt-Barter in the conference of Port Sanitary Authorities, in which he explained the practical difficulties in the way of safe-guarding our shores from the importation of infective diseases from abroad. He rightly emphasised the fact that this work of supervision was not any mere local duty, but really an important duty to the whole nation, the cost of which needs to be borne by the national exchequer. The ever-present disease, diphtheria, was discussed by Dr. A. Hill. He dwelt upon the necessity, if we are to successfully prevent and mitigate this disease, of rigidly enforcing notification, isolation, the exclusion of diphtheria cases from scarlet fever wards, careful disinfection of clothing, bedding, &c., strict regulation of school attendance, supervision of milk supplies and the boiling of all milk, removal of dampness, darkness, and other insanitary conditions from dwellings, the careful observation and isolation of cases of sore throat, however mild, the destruction, or at least effective disinfection, of sputa, and, finally, what is not always easy to carry out, the bacteriological examination of all cases of sore throat, however trivial they may appear, and the employment of bacterial cultivations during convalescence from diphtheria until the microbe can no longer be detected.

One of the most exhaustive papers read before this Congress was that by Mr. Wynter-Blyth upon the isolation of the infectious sick in hospitals. The chief points in his address may be thus summarised: (1.) It is a duty and necessity to provide proper infectious hospital accommodation in every district. (2.) The public must not expect too much from these infectious hospitals, epidemics of infectious diseases are pandemic in their nature, and depend on some obscure and general cause. (3.) The increasing and great fatality of measles coupled with the general neglect of precautions to prevent its spread point to the end of compulsory notification and hospital accommodation for the disease in all large towns.

An excellent exhibition was held in connection with this Congress, in which a large display of sanitary appliances were shown.

IV.—*Special Points of Hygiene.*

Enteric Fever.—The great importance of a test by which enteric fever can be quickly and certainly recognised and the colon bacillus separated from Eberth's is fully recognised. The latest method proposed is Elsner's test and the so-called serum diagnosis. In the former, ordinary gelatin is prepared with an infusion of potatoes (590 grammes to one litre of water). To this is added enough normal sodium solution to give a slight acid reaction. After filtering and sterilizing, one per cent. of potassium iodide is added. If this is inoculated from fœces the growth of all microbes is found to be prevented, except the colon and Eberth's bacillus. Colonies of the latter appear in forty-eight hours as small, shining, clear drops, while those of the latter are longer, brownish and coarsely granular. Elsner thus isolated the bacilli in fifteen out

of seventeen cases, the two where it failed being convalescent ones. Chantemesse and others have confirmed these results.

To apply the serum test Widal obtains blood with aseptic precautions from a typhoid patient, separates the serum, and introduces a few drops of the latter into a tube containing ten or fifteen times as much broth inoculated with a culture of Eberth's bacillus, which is then placed in an incubator at a temperature of 39° C. for twenty-four hours. The broth is then found to be cloudy, due to masses of bacilli, which on microscopic examination are seen to be motionless. Widal and Dieulafoy has tested the blood of many other persons in health or suffering from various diseases and found no such immobilisation and agglutination of bacteria on the addition of their serum.

In his report to the London County Council, Mr. Shirley Murphy has pointed out that the excess of enteric fever in London coincided with a flood in the Thames and Lea, which excess did not occur in districts taking their supply from other places. There is no doubt that even in cases where the poison is enormously diluted, outbreaks of this disease have occurred; for example, the Tees Valley Epidemic, and, later, the Merrimac one—in this latter the town was twenty miles from the source of contamination. The difficulty of the diagnosis of the bacillus is enormous, and especially its differentiation from the pseudo-typhoid bacilli described by Sanarelli and Cassedebat.

Small-Pox.—In view of the recent report of the Royal Commission on Vaccination the following figures are instructive:—In Manchester the mortality among 996 cases for unvaccinated was 26·47 per cent., for vaccinated 4·04 and among the doubtful 13·2; and no death in a vaccinated person under the age of fifteen years occurred. In the Bristol epidemic the deaths among the unvaccinated cases were 26·3 per cent. and those among the vaccinated 6·6, only one being among the revaccinated and none in protected children under 10. In Brighouse the figures were 30·6 and 4·85, while there were no deaths among the revaccinated, and in four cases the fact of vaccination was uncertain.

The per-centage of unvaccinated children in the country generally is on the increase. The Local Government Board find that no less than 13·4 per cent. are accounted for up to 1891.

Cholera.—The results of Haffkine's inoculations in Assam are interesting. In a population of 3,150 uninoculated there were twenty-eight and a half cases of cholera per thousand and a death rate of 17·4, while among a nearly equal number of inoculated persons there were 3·2 cases per thousand and a death rate of 1·4. Dr. Powell considers that the strongest doses do give complete immunity, though a high one, while small ones give little protection.

A controversy has arisen whether toxin obtained from cultures is the same as that in the bodies, and whether antitoxins prepared from each may not have any different properties. Metchnikoff and Roux claim to have prepared from cultures a protective serum which neutralises the poison, though apparently not destructive to the microbes. Pfeiffer's serum prepared by injection of the bodies of bacilli destroys fresh bacilli, though it is powerless against the poison.

Thus, the difference in the action of cholera, typhoid, and diphtheritic serum depends on the mode in which it is prepared; one destroys the invading microbes and the other neutralises their products. Stutzen states that cholera vibrios are rapidly destroyed in water containing fœces and urine, but live much longer where these are absent or present in very small proportions.

Disinfection of rooms by Formaldehyde Vapour.—Dr. Washington Jones has drawn attention to the advantages of this method of disinfection for rooms and wards of hospitals. The experiments by Roux, Irillat, and Bose show that by the use of formaldehyde sterilisation can be made absolutely perfect, and that by simple methods this can be done in an ordinary house or hospital ward without removing, destroying, or damaging a single article. So powerful is the action of formaldehyde, that it has happened in bacteriological laboratories that all the cultures have been killed by inadvertently leaving the stopper out of a 10 ounce bottle of formalin. The present method by sulphurous acid or chlorine gas is certainly unsatisfactory: the quantities generally used are much too small, and in any case it is impossible to maintain the proportions required. In experiments made with these disinfecting agents, we find that even some of the bacteria themselves escaped. I referred in last year's report to a very important paper on "The Disinfection of Rooms," by Professor

Sheridan Delépene in which he showed that sulphurous acid was not to be relied on as a disinfectant. For disinfecting rooms infected with tubercle bacilli Professor Delépene strongly recommended washing the walls with bleaching powder, or, in other words, using a solution of chlorinated lime. There are, however, limitations to this method of procedure from the point of view of injury to clothing and other fabrics, and if better results can be obtained by simple methods in any house or hospital ward, the advantages of formaldehyde as a disinfectant can hardly be over-estimated. It has also been found that disinfection by this agent is much cheaper than by other methods, such as sulphurous acid, &c. The cost of formalin is about 2*s.* 8*d.* per pound.

In his address at Glasgow, Professor Ramsey took for his subject, "The Purification of the Atmosphere." Dealing with the smoke nuisance he argued against the theory that there is any real economy to be gained by the use of smoke consuming grates or furnaces. Smoke, consisting of finely-divided particles, determines the condensation of moisture. In this way sunlight is not only diluted by being compelled to pass through a pall of smoke, but may be entirely shut off by the resulting mist, fog, cloud, or rain. The rays which are most easily shut off are those of the blue and violet end of the spectrum, and these are precisely those which are fatal to microbial life, and which are engaged in the formation of hydrogen peroxide, the most potent destroyer of organic matter. Professor Ramsey advocates coke in place of coal for all purposes, and suggests a simple means by which a coke fire may be ignited by gas.

Dr. Billings of the United States Army in conjunction with Dr. Weir Mitchell has contributed a valuable paper on "The Composition of Expired Air and its Effects on Animal Life." Their experiments corroborate those made by Haldane and Stewart in this country, and show that expired air really contains no special poisonous organic matter.

The ill-effects produced by an impure atmosphere are due solely to a lessened proportion of oxygen and to a small extent to the presence of an increased quantity of carbon dioxide. The increase in watery vapours and of temperature are also factors which produce "closeness" in rooms.

In the *British Medical Journal* of September 12th, 1896, Dr. McWeeny contributes a valuable paper on the water supply of Dublin Barracks.

It is a matter of common knowledge that during late years enteric fever has attacked those occupying these barracks and that the expenditure of large sums of money has hitherto failed to stamp out the disease. Suspicion has on more than one occasion fallen on the water supply and samples have been frequently sent to Netley for chemical and bacteriological examination. It is extremely satisfactory to find that the bacteriological examinations made by Dr. McWeeny correspond in all particulars with those done at Netley. We, too, failed to find B. typhosus, but the presence of the coliform bacilli were not overlooked. These reports are for obvious reasons regarded as confidential by the War Office, and I am unable to publish them or give them the prominence Dr. McWeeny has been able to do; at the same time I am glad he has been able to corroborate our work here, and the fact must be equally satisfactory to the War Office.

In the same journal Dr. Newsholme gives an interesting paper on "Enteric Fever and Shell-fish." After carefully excluding all other sources of infection such as defective drainage, milk supply, &c., he shows that thirty per cent. of the cases of enteric fever in Brighton during the years 1893 to 1896 were attributable to shell-fish. Thirty-six cases were traced to oysters and thirty to mussels. Those who suffered were chiefly males and particularly those following the occupation of publican, caterer, theatrical manager, &c.

In others, who had partaken of oysters, these did not suffer from enteric fever, but from diarrhœa, colic, &c.

Foods.—Mr. Thorne Thorne, F.R.S., has again drawn attention to disease being communicated by milk, pointing out that enteric fever was only thus conveyed when the milk had been contaminated by a patient suffering from that disease, that scarlet fever and diphtheria might be derived on the other hand from a disease in the cow herself, and that cholera, foot and mouth disease, and tuberculosis were also carried by milk. He urges the great necessity of boiling all milk in view of the great danger of infection of tuberculosis and

the difficulties of detecting the disease in the cow. As regards boiled milk there are some who insist on the inferior value compared with uncooked milk as a food. Kerr states that milk in its raw state is largely composed of living cells, which are, he thinks, absorbed alive and enter the circulation without change; he is supported in this view by Koplik, who showed that the unabsorbed nitrogen in the fœces is much greater after a meal of cooked than after one of raw milk. It is interesting also to note that in New York the standard for milk laid down by law is much higher than what is usually accepted by Somerset House. No milk is allowed for sale unless it has 12 per cent. of total solids and 3 per cent. of fat. The minimum of "solids not fat" is 9 per cent. In this country 8·2 is accepted, and it may further be noted that the present standard in New York is by some authorities there considered too low and should be raised.

In the United States Army the experiment has once more been repeated, of the possibility of saving carriage by the use of condensed foods. Compressed tablets containing the usual articles of diet in a concentrated form were supplied to a body of troops, but the men broke down utterly after four days' easy marching, and more than half were ill enough for hospital treatment though the tabloids when moistened or boiled formed a fairly bulky food. From various analysis made at Netley it was found that many preparations of meat extracts and other condensed foods were worthless, the large proportion of water being one of their chief characteristics. The majority examined in this laboratory were salty foods, containing the sodium chloride from the blood and muscle liquid; the phosphates and potash from the muscle fibre itself along with the extractives. These classes of foods may be regarded as stimulants, restoring bodily activity after fatigue or shock, but in no way can they be regarded as true nitrogenous food.

Bread.—English bread is made chiefly with a yeast grown in a mixture of malt and hops. In the army the plain compressed yeast is used, the same as in Vienna bread. Scotch bread is made with flour-grown yeast and leavened bread with dough held over from a previous baking, which causes peptonisation and not alcoholic fermentation. In the Hovis flour the germs are first destroyed by superheated steam as they otherwise keep badly. In aërated bread a stale malt and flour yeast is used as well as carbonic acid pumped into the dough.

Tea.—Some interesting experiments have been made on the effects of tea on digestion. McKechnie shows that as regards peptic digestion in a test tube, if tea is added, he finds that the time of digestion is not affected by the length of duration of the infusion or absence of tannin. He thinks that tannin itself has no effect, but that some unknown substance is subtracted from tea by long infusion which hinders peptic digestion.

Ptomaine Poisoning.—Several instances of poisoning by bad meat have occurred during the past year. Veal has very frequently been the cause. Sir Charles Cameron has recorded a case due to frozen Australian meat which had been slightly salted; it was found to contain ptomaines in abundance. He states that frozen meat and also tinned meat exposed to ordinary air soon becomes tainted. In Austria there were cases of poisoning by veal, at Leicester from tinned food, and in several instances in France from veal. Seventy people were poisoned, with four deaths, at Limerick after eating a custard made with stale eggs and milk.

Influence of Soil as a Factor in the Production of Disease.—This subject has of late been receiving a good deal of attention. In Dublin, Sir Charles Cameron, who has been studying the etiology of enteric fever, states that the really serious factor in its spread is the soil. A study of several thousand cases shows that there is far more enteric fever on the gravels than on the boulder clay, both formations constituting the site on which Dublin is situated. In the gravels the ground water lies very low, whilst in the boulder clay it comes close to the surface of the ground. He states that the midden system, which for centuries has prevailed in Dublin, has polluted the soil extensively and the bacilli of enteric fever have established themselves in it, and that the soil conditions are more favourable in the gravel than the clays for the development of the bacilli. In England the same facts have been observed. Dr. Porter, in his investigations into the etiology of enteric fever at

Stockport, shows the intimate connexion between the soil and this disease. He states that the parts of the town unaffected by enteric fever are situated on the boulder clay, whereas the typhoid-infected districts consist of sponge-like sand on gravel, overlying more or less basin-shaped layers of clay. Dr. Porter believes that the exceptional heat and drought of 1893 caused a great increase of enteric fever by reducing the self-cleansing power of the sewers, by lowering and diminishing the circulation of the ground water and thereby reducing its purifying influence on the subsoil, thus favouring the development of the specific enteric fever poison in stagnant sewer deposits, polluted subsoils, &c. The same condition of things produce very similar results in Calcutta. Dr. Simpson, in his report for 1895, states that the drainage of the town area is seriously defective and that of the added suburban area still more so. The suburban fever rate was 20·9 against 14·6 for the town, and in an area where the drainage is intercepted by a high level canal, the rate rose to 27·0. Nothing is more certain in India than that the impeded flow of water through the soil and subsoil causes an excessive prevalence of malarious fever. In the suburban area of Calcutta the increased and liberal supply of filtered water has added to the stagnation and consequent fever prevalence; there is not only much water-logging in and around Calcutta, but there is great pollution of soil and subsoil by leakage and imperfect discharge. I have elsewhere pointed out that in India epidemics of cholera almost always occur during or after rain. This can be readily understood if we assume, with Pettenkofer, that soil moisture as distinguished from absolute dryness or saturation, heat aëration, the presence of the specific germ and filth are the essential earth conditions for the spread of cholera. On the other hand, rainfall, sufficient to saturate the soil, will tend to arrest the disease, however high the temperature may be, owing chiefly to the micro-organisms being carried further from the surface where they are no longer among favourable surroundings. If rain merely moistens a previously dry and foul soil, the other conditions being present, it may induce an outbreak. Given a moist soil prolonged heat and drought may establish conditions most conducive to cholera. It is readily intelligible from these conditions that low-lying and crowded districts invariably suffer more severely from cholera during epidemics than those at higher levels and more sparsely peopled. The former have usually not only to contend with their own local impurities, but, not infrequently, also with those carried into them by the drainage of ground water from places above them. A low level in itself is not sufficient for the epidemic extension of the disease unless combined with a comparatively high temperature of both air and soil. It must not, however, be overlooked that unless these various agreements between cholera curves and curves of soil heat, moisture and ground water levels are to be regarded as mere coincidences, an essential factor to explain their association with cholera prevalence would be the presence in the soil itself of the specific germ. In no cholera epidemic has this yet been done, but to those familiar with the countless numbers of bacteria present in even comparatively clean soils and the difficulties experienced in obtaining pure fractional cultures of particular forms from impure growths, this non-isolation from, and failure to find in, soil samples the cholera vibrio will not be surprising.

The following is a list of the samples of the waters, foods, &c. sent to the Hygienic Laboratory at Netley for special analyses, and were reported on to the War Office during the year :—

	No. of Samples.
Water	59
Emergency rations	4
Port wine	1
Sewage	1
Sewage effluent	4
Earth	1
Cod liver oil	1
Dust	1
Bread	6
Biscuits	2
Desiccated bread	1

Desiccated eggs	1
Flour	3
Rice flour	1
Butter	1
Malt liquors	5
Brandies	2
Milk	1
Condensed milk	1
Preserved green peas	2
Meat extract	1
Arrested foods	11
Aluminium water-bottles	2
Filtering materials	1
First field dressings	2
Hupertz water purifier	1
Filters	12
Carbolacene	1
Vomit from case of suspected poisoning	1
Total	136

The following table gives the means of the analyses of water in parts per 100,000 :—

Table of Drinking Waters according to Purity.

No.	Class of Waters.	Chlorine.	Oxygen required for Organic Matter.	Ammonia.		Nitric Acid.	Hardness.	
				Free.	Albuminoid.		Total.	Fixed.
30	Fit for use	4·050	0·050	0·002	0·008	1·158	17·2	8·5
5	Usable, but requires filtration.	2·060	0·095	0·009	0·012	1·661	10·2	6·1
24	Unfit on account of organic impurity and of excessive hardness and chlorides.	7·642	0·059	0·016	0·011	3·464	33·1	15·5

In the above table those waters marked "Fit for use," the chlorine is above the average for this class of waters; it is due to many samples having been received from sea-side stations which were affected by sea-spray, &c.

A very large number of these samples were also examined bacteriologically; and in every case of a suspicious water the number of micro-organisms present were noted. In no case was any specific pathogenic organism found.

APPENDIX No. II.

LIST OF OPERATIONS PERFORMED AT THE ROYAL VICTORIA HOSPITAL, NETLEY, DURING THE YEAR 1896.

By SURGEON-COLONEL W. F. STEVENSON, Army Medical Staff, Professor of Military Surgery, and SURGEON-MAJOR H. R. WHITEHEAD, late Assistant Professor.

Operations.	Number of Cases.	Diseases.	Results.				Remarks.
			Completely successful.	Partially successful.	Failed.	Died.	
Forcible flexion and extension of joints.	3	Fibrous ankylosis	2	1	—	—	
Removal of sequestra	5	Necrosis	5	—	—	—	
Removal of glands (groin).	9	Suppuration of glands.	8	—	—	1	One case died of secondary syphilis.
Removal of glands (neck).	1	Scrofula	—	1	—	—	
Circumcision	2	Phymosis	2	—	—	—	
Incision and drainage	9	Chronic abscess	3	2	3	1	The fatal case was one of spinal and iliac bone disease.
Do. do.	9	Abscess of liver	8	—	—	1	
Excision of eye-ball	3	Secondary syphilis	3	—	—	—	
External urethrotomy	2	Traumatic stricture.	1	1	—	—	
Bone scraped	6	Caries	6	—	—	—	
Incision and drainage	1	Perinephritic abscess.	—	—	—	1	
Radical cure	6	Hernia, oblique inguinal.	6	—	—	—	
Foreign body removed	2	Abscess, ischio-rectal fossa.	1	1	—	—	Two operations in the same case.
Aspiration of liver	2	Hepatitis, chronic	—	—	2	—	
Closure of perforation in hard palate (uranoplasty).	1	Secondary syphilis	1	—	—	—	
Castration	3	Do. do.	3	—	—	—	
Incision and drainage	2	Empyema	2	—	—	—	
Reamputation through knee.	1	Necrosis of stump	1	—	—	—	
Amputation of toes	1	Malformation	1	—	—	—	
Amputation of leg, lower third (Teale's).	1	Secondary syphilis	1	—	—	—	
Amputation of toe (second).	1	Do. do.	1	—	—	—	
Amputation of thigh, lower third.	1	Do. do.	1	—	—	—	

Operations.	Number of Cases.	Diseases.	Results.				Remarks.
			Completely successful.	Partially successful.	Failed.	Died.	
Excision of veins	1	Phlebitis and abscesses.	—	—	1	—	The leg amputated close above the knee joint at a later date.
Do. do.	1	Varix of leg	1	—	—	—	
Do. do.	1	Varicocele	1	—	—	—	
Ligature	1	Nævus, scalp	—	—	1	—	
Do.	3	Piles, internal	3	—	—	—	
Dilatation of sphincter and incision.	2	Fistula in ano	2	—	—	—	
Removal of exostosis	1	Exostosis of tibia	1	—	—	—	
Excision of hip joint	1	Tubercle	—	—	—	—	Patient still in hospital. Condition improved.
Removal of bullet	1	Gunshot wound	1	—	—	—	
Internal urethrotomy	1	Stricture of urethra.	1	—	—	—	
Rapid dilatation	1	Do. do.	1	—	—	—	
Excision of tumour	1	Papilloma, squamous.	1	—	—	—	On face.
Fibrous union forcibly broken down, ends rubbed together and bone put in good position.	1	Ununited fracture of femur.	—	—	—	—	Too early to judge of result.
Total	87	Total	68	6	7	4	

Remarks on some of the Operation Cases.

Cases of abscess liver,

Corporal J. E., 2nd Derbyshire Regiment. There was a history of a slight attack of dysentery in March 1895, but he did not go to hospital with it. In August 1895 he had what he considered an attack of ague, for which he was obliged to go to hospital. About eight days after admission he began to experience severe pain in the hepatic region, accompanied at intervals by a shooting pain in the liver and in the right scapular region. As the symptoms pointed to the presence of a liver abscess, the history stated that he was aspirated on three occasions, but no collection of pus was found. The temperature continued above normal, and he was invalided to England. On November 21st, 1895, he was admitted to Netley. He suffered great pain in the liver, and had constant fever on the voyage home, and on his admission here was very ill. He improved somewhat at first, but the pain continued. On the 16th December exploratory aspiration was again undertaken, and an abscess discovered in the right lobe. The next day he was transferred to the Surgical Division, and a free opening made in the post axillary line in the 8th interspace. 70 ozs. of pus were removed, and a large tube inserted. It was found unnecessary to remove any portion of the rib. The temperature at once fell to normal, and he was free from pain. He continued to do well, and on the 32nd day the drainage tube was permanently removed. He returned ultimately to duty.

Private W. N., Durham Light Infantry, was on his way to England as an invalid, having suffered much from syphilis and debility. Eight days before he arrived at Netley he was seized with diarrhœa and pains in the abdomen. He was admitted to Netley March 4th, 1896. The next day he complained of severe pain in the liver; his temperature was high, and continued so for a few days.

On March 18th his liver was explored by the aspirator, and an abscess found situated in the right lobe. An incision was made in the 7th interspace in the mid-axillary line, and a small abscess evacuated. The temperature fell for a day, but the general symptoms were not relieved, and the presence of a second abscess was diagnosed. On the 26th March a large abscess lying behind the original one was found by the aspirating needle, and this was opened and drained. No rib was removed. The temperature fell at once, and he improved rapidly. The tube was removed on the 13th day, and the abscess rapidly healed. The patient was suffering from syphilitic sarcocele, and was invalided out of the service on this account.

Private W. E., 2nd Lancashire Fusiliers, aged 24, embarked for India early in 1893. In June of same year had acute dysentery; in 1894 had three admissions for dysentery. Was admitted to hospital for ague July 1895, and remained for 13 weeks; was then brought before a board, and invalided to England. On the voyage home his liver became very painful, he had high fever, and was landed in a very critical state. On November 8th the liver was explored by an aspirating needle, and an abscess found in the right lobe, below the costal cartilages just to the right of the median line; 16 ozs. of pus were withdrawn. The next day the needle was again passed into the abscess cavity at this position, and an incision made. It was, however, found that the liver was not adherent to the abdominal walls, and the abscess was not reached. The wound was therefore carefully cleansed and closed. The peritoneum having been carefully sutured with catgut, an attempt was then made to reach the abscess from the 8th interspace in the anterior axillary line. As the drainage was not effective the abscess was allowed to refill, and on the 21st November the aspirating needle was again employed to locate the position of the abscess. After several negative attempts a large collection of pus was found on the posterior aspect. This was opened freely in 9th interspace below the angle of the scapula, and a drainage tube inserted. The pus was very fœtid. It was evident that an abscess had burst into the right pleural cavity. Efforts were made to maintain efficient drainage, but the patient gradually sank from exhaustion and died.

Private P. C., 1st North Lancashire Regiment, a time-expired man, was admitted to Netley on January 4th from the "Britannia" suffering from abscess of the liver. His medical history sheet showed that he had been twice in hospital for dysentery, in 1891 and 1892, and that he had suffered repeatedly from ague and hepatitis. Before he left India in December 1895 he was suffering from hepatitis, and was in hospital for this at Deolali and on board ship. He embarked on December 4th. On the voyage the pain in the liver became much worse, and some bulging of the right side was noticed. An abscess of the right lobe of the liver was diagnosed, and on the 15th December was aspirated. On his admission to Netley on January 4th the abscess had again filled up, and on the 7th January it was freely opened in the 8th interspace in the post-axillary line, and a drainage tube inserted. The abscess proved to be at some distance from the surface. The drainage tube was permanently omitted on the 15th day, and the patient made an uninterrupted recovery, and left the hospital cured on February 15th, 1896.

Lieutenant M., Royal Artillery, aged $27\frac{9}{12}$, was invalided from the Waziristan Field Force for remittent fever, preceded by dysentery and accompanied by symptoms of hepatitis. He left Bombay on 10th October 1895, and during the earlier part of the voyage his health improved very considerably. In the Red Sea he "caught a chill," which was followed by rigor and intense pain in the hepatic region; his tongue was furred, the motions clay-coloured, and the bowels constipated. The right side, over the region of the liver, showed a general bulging, and on October 31st a distinct swelling was observed over the 9th and 10th ribs, a little behind the mid-axillary line. The pain and tenderness at this point were very great, but there was no œdema or redness of the skin. The case was diagnosed as one of abscess of the liver, but it was not thought advisable to operate on board ship. The temperature ranged between 99° F. and 102° F. When he arrived at Netley on 6th November he was in an extremely emaciated condition, suffering great pain in the swelling above referred to, which was very tense, and in which fluctuation was very perceptible; temperature 101·4° F. There was no jaundice, but the colour of the face and skin generally was dark and cachectic-looking, and the bowels

confined. He arrived at 4 p.m., and, as he had undergone a good deal of fatigue in his transfer from the ship, it was not thought desirable to operate immediately; but as the abscess was in such an extreme condition of tension, aspiration was done, and 22 ozs. of typical liver pus were removed. This gave him relief from pain, and he passed a fairly good night. Temperature 101·4° F. at 9 p.m., pulse 100.

On November 7th an incision 3 inches long was made over the most prominent part of the tumour, which was over the 9th interspace in the mid-axillary line. It was then found that the tumour was formed by a collection of pus between the skin and the chest wall, and that it communicated with the liver abscess only through a small aperture in the latter. The abscess cavity was then laid open, and about 8 ozs. of pus given exit to. As the ribs were found to be very close together an inch of the 10th was excised, the periosteum having been previously pushed off it to that extent by means of a raspatory. Measurement with a long probe showed the back wall of the abscess to be about 7 inches from the surface. Two large-sized drainage tubes were put in, and iodoform gauze and alembroth wool dressings applied. The evening temperature was 98·4° F., and the pulse 88.

Further daily details of the progress of the case are unnecessary. The temperature never again went above normal; the patient's appetite improved, he put on weight steadily, and all pain ceased. The discharge, very free at first, rapidly lessened, and all drainage was omitted on 25th day after operation. The abscess cavity was irrigated out with iodised water (1 dram of the tincture to a pint of hot water) at each dressing, and finally the patient was discharged from hospital on December 14th, 1896, apparently in perfect health, having gained 19½ lbs. during the last 22 days of his stay in hospital, and having lost his cachectic appearance.

Excision of hip.

Gunner A. M., Royal Artillery, aged 22, with one year's service, contracted syphilis in India early in 1895. In March of that year he first began to feel pains in the joints, the pain in the knee and hip of the right side remained persistent; latterly the hip joint of the right side began to swell, and the pain and starting in the joint became very great. In January 1896 an abscess pointed in front of the joint; this was opened, the discharge continued profuse, and the patient lost flesh rapidly. On April 9th he left Bombay for England, and arrived at Netley May 6th. On his admission the case was clearly one of advanced hip-joint disease. Our experience here of anything of a nature of expectant treatment in these cases has been bad. We therefore decided to excise the joint at once with the hope that the whole of the diseased bone might be removed. The joint was excised on May 27th by an external linear incision, but it was found that the acetabulum was considerably diseased in addition to the head of the bone. In the centre of the acetabulum was a sequestrum, which, on being removed, admitted the finger into the pelvis. The head of the femur and great trochanter were removed by section below the latter, and the acetabulum freely scraped and all carious bone that could be felt removed. The case was a very unfavourable one. Since the operation the discharge has been less, and the pain has gone, but a satisfactory issue can hardly be expected.

Rapid dilatation of stricture of urethra.

Gunner W. F., Royal Artillery, aged 25, contracted gonorrhœa in November 1890; again in 1891; since that time had always suffered from a gleet. In March 1893 first noticed the stream getting smaller, and in July 1893 it used to take him about ten minutes to empty his bladder. On July 20th, 1893, he was admitted to hospital with retention of urine; this was relieved by catherization; since then had constantly been in hospital for retention of urine. In October 1895, after using the catheter to relieve the retention, considerable hæmorrhage took place, and since that date no catheter has been passed. The penis and scrotum began to swell, and on admission to Netley April 1st, 1896, the parts were so swollen, hard, and indurated as to make it doubtful whether a new growth had not taken place. At this time he passed his water with difficulty. An abscess formed in the indurated mass and pointed on the anterior surface of the scrotum, where it was opened, after this the urine found its way through this opening. At first no instrument could be passed; the meatus was also much contracted. After a time a No. 2 gum elastic was passed and tied in; an attack of urethritis followed this proceeding, and delayed the treatment. In a few weeks a No. 4 could be passed, the

track was very cartilaginous and twisted. The stricture at the meatus gave a good deal of trouble on account of hardness and resistance to dilatation. This was divided, and the stricture dilated up rapidly under chloroform from No. 4 to a full-sized instrument. From this date the case did well.

External urethrotomy.

Private G. S., 2nd Battalion, Welsh Regiment. The history of the case is as follows:—On May 25th, 1895, he received a kick from behind in his perineum. About two hours after this he found he could not pass his water; on trying to do so only a few drops of blood came and he fainted. He was admitted at once to hospital, where the urine was removed by catherization. The parts became very painful, and in a day or two an abscess formed, on the third day of the disease the abscess was opened, and after this he passed his water entirely through the sinus in perineum. All attempts to pass a catheter failed, and from this date he has passed his water entirely by the perineum. On September 31st an operation was undertaken, but no instrument could be passed into the bladder, and all the urine still continued to pass by the perineum. He was admitted to Netley on the 29th November 1895. On examination it was found that he passed all his urine through a fistulous opening one inch to the right of the centre of the perineum, and that often this opening contracted to such an extent that the greatest difficulty was experienced in passing any urine. No instrument could be passed further down than about five inches from meatus. From the history of the case there was no doubt that a traumatic rupture of the membranous portion of the urethra had taken place. Although the case seemed a very unfavourable one it was decided to attempt to divide the stricture by Wheelhouse's operation. No passage could, however, be found, the urethra seemed to be completely divided and occluded. The urethra was therefore opened behind the stricture by Cock's operation, and an attempt made to dissect through the stricture. A catheter was then passed down the urethra from the meatus into the bladder. As long as the catheter was kept in the case seemed to do well and hopes were entertained that the natural passage would be maintained, but the moment the catheter was removed the passage again and again contracted, and he suffered from attacks of retention, great difficulty being experienced in re-introducing the catheter. The danger of this condition appeared so great that it seemed better to dilate again the passage to the bladder through the perineum and allow him to pass his water permanently by this channel.

Bombadier R. P., aged 25, of the Royal Artillery, had suffered from six severe attacks of gonorrhœa. The last attack occurred in June 1895, for which he continued under treatment till his admission to Netley, April 29th, 1896. On his admission he had cystitis and great pain in passing his water. The pain was referred to the perineum, to one particular spot, and in this position a small hard lump, intensely painful to touch, and which swelled up when he made water, could be felt. He had a slight stricture at the commencement of the membranous portion of the urethra. His urine was passed with great frequency, and contained pus. He was kept in bed and his bladder carefully washed out, and every effort was made to allay the cystitis, but no improvement took place. On three different occasions he was sounded for stone, but none could be detected. In order to give the parts complete rest the urethra was opened in the perineum and the bladder drained by this method. He is still under treatment.

Internal urethrotomy.

Gunner I. F., Royal Artillery, aged 24. In November 1895 first noticed that he could not pass his water freely. He had no history of gonorrhœa, syphilis, or injury to the urethra, and there was nothing in his history to account for the formation of a stricture. He went to hospital in 1895, but no instrument could be passed. On his arrival at Netley he at once developed measles, from which he made a good recovery. The stricture was in the penile portion of urethra about 2¾ inches from meatus. After considerable difficulty a No. 1 catheter was passed, but dilatation was very difficult; the stricture was hard and cartilaginous, and no progress was made. Internal urethrotomy was therefore undertaken and the stricture divided by Teevan's urethrotome. No. 12 was at once passed. Only a few drops of blood escaped, and the patient made a rapid recovery. On his discharge from hospital No. 12 could be passed with ease, and the patient had been instructed to use a full-sized bougie himself.

Extraction of bullet.

Private D. D., 1st Battalion, Gordon Highlanders, received a bullet wound just below the left knee on April 3rd, 1895, at the battle of Malakand Pass,

Chitral Expedition. He was admitted to hospital, the wound explored, and, he states, three pieces of lead removed. The latter statement was not supported, however, by any documentary evidence. The wound eventually healed up, and the man was sent home and admitted to Netley April 28th, 1895. On his admission here he had a firmly cicatrised wound 2½ inches in length, situated just below the level of the tubercle of the left tibia, on the inner side of the leg. The bone was not enlarged, and pressure on the cicatrix was not painful. He complained, however, of deep pain in the bone at times and lameness, and he fancied that the bullet was still present. By means of a skiagraph by Röntgen's rays the presence and position of the bullet was ascertained, and an operation undertaken for its removal. On deepening to the required depth the bullet was not at once found. The bone around was explored by a drill, and a hard substance detected below the original cavity. On clearing the bone away and applying the electric bullet explorer, it at once indicated the presence of the bullet, and on illuminating the cavity by a small electric lamp the bullet could be seen firmly imbedded in the substance of the bone, and was removed without further difficulty. The chief interest in the case centres in the help derived from the use of Röntgen's rays. There was nothing objective to make one believe that the bullet was still present. The subjective symptoms, however, pointed to this as a possibility. We doubt if any surgeon would have cared to prospect to the depth at which the bullet was at length found unless he had strong evidence of its presence. By means of the skiagraph obtained by Röntgen's rays all doubt was placed at rest, and the operation confidently undertaken.

nputation rough knee-nt.

Private J. C., 2nd Battalion, Royal Munster Fusiliers, aged 35. This was a case of re-amputation. The patient was run over by a carriage and his leg was amputated in India in August 1895, at the seat of election over one hand's breadth below the knee-joint. On his arrival at Netley the stump was very painful and sinuses led down to diseased bone. The patient's health was a good deal shattered. He had been a heavy drinker and looked much older than his age. At his earnest request it was ultimately decided to re-amputate through the knee-joint on account of the painful nature of the stump. Although it was evident that the flaps would impinge upon the sinus tissue, it was thought better to undertake the amputation in this position and thoroughly scrape any doubtful tissue which might be found in the edge of the flap than to run the risk of the greater shock of amputating higher in the thigh. This, however, was not good policy, as the sequel proved. A spot or two of sinus tissue was found in the flaps; these were carefully scraped and treated with pure carbolic acid. The flaps, however, became septic, and it was only after a prolonged and tedious period of suppuration that the stump healed.

nputation of

Private H. C., 1st Northampton Regiment, aged 21, was born in India of English parents. There was a family history of tubercle. He contracted syphilis in March 1894, and passed through the early secondary symptoms. In January 1895, after a long march, he first felt pain in the right ankle joint. It became swollen and acutely painful. He was about a month in hospital and then returned to duty. In May the ankle again became painful and swollen. He was admitted to hospital in India, and gradually became worse. He was finally sent to England and admitted to Netley in April 1896. On his admission the right ankle joint was much swollen and acutely painful on movement. A sinus lead into the joint from a spot just below the internal malleolus. This discharged unhealthy pus. He complained much of starting pains in the joint, and it was quite evident that the bones of the joint were acutely inflamed. As the drainage was insufficient the sinus was laid open, the parts thoroughly explored, and some carious bone removed. The discharge still remained profuse, and the man's health suffered considerably. Amputation was therefore recommended; this was carried out by Teale's method, the section of the bone taking place at the junction of the middle and lower thirds. The patient made an excellent recovery, his general health improved, and he left the hospital in good health with a suitable artificial leg.

nputation of igh.

Gunner W. G. was sent home for secondary syphilis and had several rupial sores on the right leg; these were in a very unhealthy condition. Phlebitis of the long saphena vein occurred, and several abscesses formed in its course. They were opened; the vein was found in parts filled with pus. These portions

were dissected out, and a large abscess opened in Scarpa's triangle. The case at first did well; about six weeks afterwards, however, the man began to complain of very severe pain in the right calf, the leg was much swollen and œdematous. No pus could be localised; new incisions were made to relieve tension. The incisions gave great relief for the time, but very shortly the leg again became extremely painful and the skin very tense. Exploration was again undertaken to see if any collection of pus existed. None, however, could be found. The tibia and fibula also seemed extremely painful on pressure. The pain now became excruciating, and the patient's condition was most serious. It was therefore decided again to search for any collection of pus that might be giving rise to the symptoms. It was also evident by this time that both the bones of leg were in a state of inflammation. A long incision was made at the back of the calf, the gastrocnemius and soleus divided, and the deep fascia opened. It was then found that a false aneurism existed connected with the posterior tibial artery, and it was decided to amputate above the knee joint. This was done by a long anterior and short posterior flap. On section of the bone the medullary canal and contents were found in an inflammatory state. A long and tedious recovery took place. The case did not pursue an aseptic course, and great retraction of the flaps occurred, requiring a further section of the bone. Ultimately the patient made a perfect recovery with a good stump.

Removal of foreign body from perineum.

Private J. M., 2nd Battalion, East Surrey Regiment, was admitted to Netley 3rd December 1895. The history of the case was as follows:—In April 1895 the man was hanging up some clothes to dry on the punkah, when he slipped and fell on the arm rack; the muzzle of a rifle with sight protector attached entered his right buttock; the sight protector remained in the wound, and was reported to have been subsequently removed. The sciatic nerve had evidently received injury, as he had paralysis and pain corresponding to its distribution. The wound healed to a great extent and the paralysis disappeared, but sinuses ultimately formed, which discharged unhealthy pus, and the man's health became much broken. He was therefore sent to England for change, and arrived at Netley on December 3rd, 1895. On his admission he had three sinus openings in the right ischio-rectal fossa, just above the tuberosity of the ischium. These sinuses led deep into the ischio-rectal fossa, by the side of the rectum, but did not appear to communicate with it. The patient was in a very low state and the parts most unhealthy. On December 28th the sinuses were slit up, a hard body could be felt with the probe deep in the perineum, and on cutting down to this a Lee-Metford sight protector was found in an abscess cavity. This was removed and the cavity well scraped. The sight protector had therefore remained *in situ* for 9 months. At first the parts seemed inclined to heal, but a good deal of discharge was present, and it was considered highly probable that some further source of irritation existed. On March 24th he was placed under the influence of chloroform, and the parts again laid freely open. On exploring with the finger a wad (three folds) of cloth was found and removed. This proved to consist of two layers of Kharki trouser and one layer of drawers, about the circumference of a two-shilling piece. Three detached pieces of dead bone were also removed, and the parts again freely scraped. As the wound was very deep healing took some considerable time. The man improved remarkably in health, and in time made an excellent recovery. As some stiffness in the parts and lameness remained he was invalided out of the service, but was quite capable of earning his livelihood in civil life.

Operations on bone.

Removal of Exostosis.

Several operations on bone were undertaken during the period under review. Among the most interesting was the case of Gunner E. K., Royal Artillery. He was admitted to Netley as an invalid from India on May 6th, 1896. The history of the case was that three years previously he noticed that the tibia of the right leg was swollen in the middle of the shin. At first the enlargement was painless; after a few months it began to be painful, especially after exercise, and on his admission the pain was very severe; he had tingling in the foot and symptoms of interference with the anterior tibial nerves. At length the pain became so constant and severe as to cause sleeplessness, and his general health suffered considerably. There was no history of syphilis in the case. It was decided to cut down and explore the painful spot. A small exostosis was then found on the outer surface of the tibia just in front of the interosseus

membrane; over this the anterior tibial nerve played, and at this spot the nerve was considerably enlarged. The exostosis was removed by chisel. After a few weeks' rest all the pain left him, and he returned to duty.

Uranoplasty. Private J. S., aged 26, of the 1st Devon Regiment, contracted syphilis in 1888, and passed through several of the sequelæ of the disease. In 1893 he had ozæna and lost some of the nasal bones, a piece of the hard palate died, and ulceration affected the soft tissues of the roof of the month; the result being a hole about the size of a shilling connecting the nasal and buccal cavities. This caused very great inconvenience and discomfort. No other symptoms of syphilis were at this time present, and he seemed in good health. After a short course of anti-syphitic treatment an attempt was made by operation to close the aperture. The edges were first pared and a long incision made parallel with the opening on each side of the roof of the mouth and at some distance from it. All the soft parts, including periosteum, were then raised until the soft parts of the hard palate hung down as a curtain. The edges of the aperture then came together without the slightest tension and were secured by four salmon gut sutures. The result was most successful; primary union took place, and the hole was closed by a firm pad of tissue. The man was discharged to duty.

Aneurismal varix; neck. This was an interesting case. Private A., aged 24 years, while marking at the butts in November 1893, was struck in the neck by a fragment of the envelope of a Lee-Metford bullet; the piece of metal was triangular in shape and about half an inch long, and lodged in the wound. The man was knocked down and profuse hæmorrhage immediately occurred, the blood "spurting to a distance of 3 yards." A sergeant who was present at the time tied a flat stone over the wound, which completely controlled the hæmorrhage while the man was being carried to the station hospital. At the hospital the wound was found to be ½ inch long, and situated over the line of the carotid artery, 2½ inches below the point of the mastoid process. The splinter was removed and the wound disinfected and dressed, but not stitched up; no marked hæmorrhage occurred during this operation, and no vessel seemed to require ligature. The wound healed without complication, and the man left hospital after a month.

Soon after the injury the patient's voice was noticed to be weak and hoarse. This condition improved but never quite disappeared.

When the wound had healed the man at first felt a slight "buzzing sensation" in the neck; this condition lasted until December 1895 (13 months), when the symptoms became much more marked, and are described in his invaliding documents as follows:—During a march from Lucknow to Jubbulpore, in December 1894, the "buzzing" noise in the head became very loud and troublesome, and it was accompanied by a thrill and pulsation at the situation of the cicatrix. This condition caused the man to fall out on the march on many occasions, and he was unable to double. He was admitted to hospital in June 1895. There was then a fulness on the right side of the neck over the bifurcation of the carotid, with thrill and pulsation.

He arrived at Netley in November 1895.

On admission there was a small tumour at the site of the scar, measuring about an inch and a half by half an inch; it was about ¼ of an inch above the level of the surrounding skin. There was a marked expansile pulsation, which was accompanied by a sensation of thrill and a loud continuous bruit, which was much accentuated during systole. The term "bruit" does not at all adequately describe the noise heard in the tumour through a stethoscope; it was a loud rumble, almost comparable to the noise one hears and feels in a train, quite the loudest pathological sound any medical officer who listened to it had ever heard. It was propagated towards the heart, and was audible over a large area; it was continuous, though much more marked during the heart's systole. The noise and buzzing did not very much trouble the patient, but he could not sleep on the right side, and if he tried to do so he suffered from shortness of breath, and awoke with a sensation of impending suffocation. He had some pain in the cardiac region. It was found on examination that the right vocal cord did not move well in approximation towards the left, and the voice was slightly husky.

The patient did not desire that treatment by operation should be undertaken, and, considering the difficulties and dangers of these cases, and the

slight inconvenience produced in this particular case, operation was not urged upon him.

Corporal R., aged 25 years, was admitted here in March 1896, having been invalided from Malta for a pulsating tumour of the scalp. He had been in hospital at Malta for the complaint, and while under treatment there in January 1896 certain brain symptoms were observed—difficulty of speech, inability to remember words, considerable loss of power of the right hand, weakness of the right leg, and attacks of faintness and dimness of vision. Nævus of scalp.

The tumour formed a globular swelling of 2″ in diameter at the base, and about 1½″ high, situated over the junction of the occipital and parietal bones on the left side. It was quite movable over the skull, and had an expansile pulsation. A large vessel appeared to enter it from the direction of the mastoid process, probably the occipital artery or one of its larger branches, and pressure on this stopped the pulsation, at all events, for a time. There was no pain nor, apparently, any erosion of the bone beneath.

It was decided to attempt to remove the tumour by ligaturing its base, thin whip-cord which had been boiled for 4 hours in 1–20 carbolic lotion being employed. Two double ligatures were passed through the base of the tumour close to the bone, the loops cut, and the cord tied at four points, all pulsation ceasing. The skin all round the base of the tumour was incised to give a grip to the ligature; iodoform was dusted over the part, and dry dressings applied.

Three days later the dressings were removed, and it was found that pulsation had returned; the scalp was œdematous, and pus was oozing from the incision around the base of the tumour. As the pulsation had returned, and as pus was forming in connection with the tumour, it was decided to try to ligature the large vessel passing into the tumour from the direction of the mastoid process. An incision was therefore made over it, internal and parallel to the posterior edge of the mastoid. No large artery was found on deep dissection, but a vein as large as a cedar pencil, was cut across, tremendous hæmorrhage taking place. This bleeding came from the mastoid vein, which was of exceptionally large calibre. The vein had been severed level with the bone, and it was impossible to tie it, but sponge-pressure was found to control it readily. Immediately the vein was cut the tumour collapsed and pulsation in it ceased; the sponge was left in the wound, and bandaged so as to keep up the pressure, and the ligature at the base being useless it was removed.

On the 3rd day after the operation the sponge was removed, and no bleeding occurred, but there was a good deal of cellulitis of the scalp, pus was oozing from the edges of the tumour, and the pulsation was as strong as ever. Temperature 102·4 F. in the morning, and 101·4° F. on the previous evening.

For several days the man's condition was most critical in consequence of septic absorption, rigors, and fever, but these symptoms gradually lessened, and eventually he recovered perfectly. When the wound had healed, the tumour was a good deal reduced in size, part of it had become solid, and the pulsation was markedly less.

A death from chloroform inhalation occurred in the hospital in June last. A note on the case appeared in the *Lancet* of September 26, 1896. It was one of those unavoidable accidents from the administration of an anæsthetic in which death suddenly occurs from cessation of the heart's action, and where observation of the respiration affords no indication of the impending danger, the pulse failing before the breathing is interfered with. All the usual means of resuscitation were employed without effect, except opening the temporal artery, a method which in similar cases, where death begins at the heart, as Professor Wright's experiments on animals prove, may be expected to be of use. Death from chloroform.

We performed the operation of transperitoneal ligature of the left common iliac artery, for a diffuse traumatic aneurysm of the external iliac and common femoral vessels, at Dover Station Hospital, the patient making a good recovery. The details of the case were published in the *Lancet* of January 25th, 1896, and need not be repeated here. Ligature of common iliac artery by laparotomy.

The necessary apparatus for skiagraphy by Röntgen's X-rays has been supplied to the Army Medical School, and has given very satisfactory results. A bullet lodged in the head of the tibia was discovered and removed by operation in one case, and in many cases, the diagnosis of both recent and old bone injuries has been rendered easy and certain. Skiagraphy.

APPENDIX No. III.

THE ASHANTI EXPEDITION, 1895-6.

I.—Report on the Medical Transactions of the Ashanti Expeditionary Force during the Period from 14th December 1895 to 7th February 1896.

By Surgeon-Major-General W. Taylor, M.D., Army Medical Staff, late Principal Medical Officer.

The experiences gained in the Ashanti expedition of 1874 were of the very greatest assistance in planning the medical part of the present one. The able and exhaustive reports of the Principal Medical Officers of the previous expedition pointed out what should be avoided, and what would probably be found useful.

They gave warning of the pestilential character of the climate, and of the diseases most likely to be met with, and they told of the circumstances and conditions by which those diseases were most liable to be induced or which would lessen the power of resistance to their attack.

Such valuable information made it comparatively easy of decision as to the lines on which the medical arrangements should be made, both as regards prevention and treatment of disease.

Prevention being better than cure, the very greatest attention was paid to details considered most efficient in that direction, without losing sight of all that was necessary for the care and treatment, as well as for the transport, of the sick, and their removal from the unhealthy area.

The preventive measures considered advisable were, in general terms, as follows:—

(*a.*) The careful selection of men of mature age, good sound physique, and freedom from history of malarial fevers or tendency thereto.

(*b.*) Suitable clothing and equipment for the climate.

(*c.*) The best form of portable preserved rations with reference to their nutritive value and antiscorbutic properties.

(*d.*) A liberal supply of such things as cocoa, coffee, tea, bovril, beef tea, soups, calves' feet jelly, spirits, and wines—particularly champagne, in short, medical comforts; with the view of preventing or overcoming the evil effects of exhaustion in its earlier stages.

(*e.*) Supply of pure water for drinking and cooking.

(*f.*) Personal hygiene.

(*g.*) Plentiful supply of those medicines, in concentrated and portable form, most valuable in the treatment of the diseases anticipated, as well as of quinine and other prophylactics against the climatic and malarial diseases prevalent on the coast.

Selection of the Men.—The selection of the men was made by the military authorities, subject to their being passed as medically fit. No man was accepted for the expedition who was under 23 years of age and had less than 3 years' service. At least, such was the general rule, though it had to be departed from in a few special cases, and the wisdom of taking only men of mature physique was shown, at any rate, in the case of those sent from England. It would be almost impossible to select men better fitted to cope with the evils of the climate, and not only so, but to do laborious work and endure hardships in it.

The same cannot be said of the 2nd Battalion West Yorkshire Regiment. The spirit of the regiment was all that could be desired, but the men were not

in the state of health which enabled them to resist morbific influences or the depression and exhaustion so prompt to seize upon any one who may be in the least degree below par. Men who have suffered from repeated attacks of malarial diseases, though they may seem to have recovered their normal standard of health, are found to be especially liable to every exhausting influence and to return of those diseases. Functional diseases of the liver and other organs, which may even be without symptoms that will lead to their detection in healthy surroundings, will, in such a climate as that of the Gold Coast, quickly develop into activity that cannot be concealed or overlooked. Men who have seemingly recovered from all the effects of repeated attacks of malarial fevers very soon become anæmic and get into the state of malarial cachexia when they return to unhealthy countries within the tropics. Burma and Aden are particularly likely to develop those conditions of susceptibility in men, and they were not long in making their appearance in the men of the 2nd Battalion West Yorkshire Regiment. The very first march out of Cape Coast Castle, a short one of only seven miles, told upon the regiment severely by showing those men, or some of them, who were unable to resist the climatic conditions, and similar cases, though gradually less liable ones, continued to fall out on the march both to and from Kumassi. There were, of course, in the regiment, a number of men who had become thoroughly acclimatized during the regiment's tour in India, Burma, and Aden, and were able to resist, or had no liability to, malarial diseases. They were, generally, the old soldiers of the battalion, and all through they were fit for any work, and marched as easily as they would have done at Aldershot or the Curragh. For expeditions in such countries as the Gold Coast those are probably the best men that could be chosen. If a regiment from the tropics or from a malarious country must go, then all those who have suffered from fevers, dysentery, or affections of the liver should be weeded out. If not, they will most certainly break down, and that at a very early stage.

Clothing.—There could have been no more suitable clothing than that given to the troops, generally speaking. Woollen material is superior to cotton. Serge is infinitely better than drill as regards comfort and health, and in every conceivable way. Indeed, the cotton drill suits issued as sea-kits should be done away with, and serge, khaki or other, substituted.

Drill is neither as cool or as warm as good serge. That may appear paradoxical, but it is not. In hot weather drill, being a close, hard material, is impermeable, whereas serge is open and permits of thorough perflation or ventilation. In the event of men perspiring, drill quickly becomes a cold, damp covering, but serge does not. In wet weather, or in the event of getting wet accidentally—not uncommon at sea—drill is sure to cause a chill. Serge on the other hand throws off a good deal of the wet, and is a much better protection against chills.

For the serge issued to the troops for land service, khaki would, I think, have been a more useful colour than either blue or red. The bluish grey worn by some of the officers was of good material, but soon became dirty.

In hot climates a coat with a fall or roll collar is to be preferred. The collar should be capable of being turned up for warmth and protection against cold or damp, but there should be absolutely no pressure upon or about the vessels of the neck. The Norfolk jacket shape is perhaps the best, but it should have no cloth belt round the waist, or it should be removable, as it interferes with the sword belt and causes discomfort.

Loose knickerbockers are much more comfortable than trousers, but whichever are worn should have plenty of room at the seat.

The leggings issued, which were of canvas or drill, were not suitable, as they soon became wrinkled and fell down the leg. They also let water through. Putties are, without doubt, more comfortable and more suitable than leggings, but it is necessary that the men should be carefully instructed in the proper way of putting them on. When once that has been learned there is no chance of the puttie coming off, and the feeling of warmth, support, and comfort which they give is greater than can be obtained from any other article of leg dress. It has been said they are apt to get torn, and to be no protection against thorns. All I can say is, that I wore one pair all through the expedition; it was necessary for me on one or two occasions to go through the bush in a way and to an extent that no one else had to do,

yet my putties neither came off, let thorns through, nor got torn, while they kept my legs dry and warm, though I had to wade through marshes and streams.

In such a climate as that of Ashanti especially, but also in all climates, it is necessary that the men should carry with them a change of underclothing, for the trunk at any rate. The best way of doing this, I believe, is to roll it up in a piece of waterproof, oilskin, macintosh, oiled silk, or similar material.

As soon as the soldier gets to the end of the march or of his day's work he should be made to take off his wet underclothing at once, rub himself dry, and put on the dry article next his skin. The advantage of having officers who saw each and every man under his immediate command do this is beyond expression in words. It would be quite impossible to give an approximate idea of the number of cases in which fever or dysentery was prevented by careful attention to such a simple rule.

Helmets.—The regulation helmet is not a good one either in the matter of comfort or of protection from the sun's rays. For comfort it is absolutely necessary that a helmet should fit the head accurately. A head-dress blocked on a standard shape—a round block—cannot fit every head, and anyone who has worn a helmet, especially in hot climates, which has been moulded on such a block, knows the discomfort and even pain it causes from pressure on the forehead. It is, moreover, easily blown or knocked off, and is a constant source of worry and annoyance. It is as necessary to fit a helmet as a pair of boots. Bad fit in one case will cause headache just as in the other it produces blistered heels. The helmet worn by one officer, and which, I am told is called the "Wolseley Egyptian helmet," is of excellent shape, is very light, and in all respects an efficient protection.

This, the head-dress, is a matter of the greatest importance and deserves the most careful and minute attention. The puggaree, without compensating advantage, adds to the weight, and appears, therefore unnecessary and useless.

Boots.—The boots were of excellent pattern, and there was very little foot-soreness. The cases that did occur were nearly all in the first few marches, when the men had recently landed and were not quite fit. They were not attributable to defects in the boots as a rule, but to want of personal care in putting on dirty or damp socks. There was a boot of very good make and shape worn by a few officers and men of the Special Service Corps.

Food.—The food supplies were sufficient in quantity and generally of excellent quality. Fresh meat was very seldom issued; it could not be obtained, but its want was not felt because the tinned rations were sufficiently nutritious, and were, moreover, palatable. When fresh meat was issued it was generally so tough and poor in quality that the preserved ration was preferred.

All the tinned rations were palatable and nutritious.

Emergency Blue Tin.—Of the emergency rations the blue service one was the best. The cocoa paste was excellent, and would make four pints of good cocoa. It could be eaten as it was, or spread on biscuit if there was no time for cooking. The soup was very good indeed, and was perhaps the best of all the soups. The defects in this ration were:—(1.) Some inefficiency in the lids; they did not always fit closely, and the cocoa was found mildewed. (2.) The soup requires too long to boil; the pieces of potato take a long time to soften. (3.) The soup cannot be eaten cold.

Brown Tin.—The contents, both cocoa and soup, were good, though the same objection existed to the latter as in the case of the blue, viz., it could not be eaten cold, and took too long to cook thoroughly. The tins were defective, however. After having been once opened they could not be closed so as to keep the contents good as in the blue tins. This is a serious defect.

Chocolate.—The navy chocolate is superior in strength and flavour to the paste, its only drawback being that it requires more time and trouble to prepare.

Vegetables.—The compressed vegetables were excellent. The potatoes were first-rate, and with the dried onions, which were exceedingly good, formed a sufficient vegetable ration, and one of which men never tired.

The mixed vegetables were liked as a change, but it was impossible to conceal the fact that they were tinned.

Tea.—The tea issued was good, but a good form of compressed tea is wanted, so that men can carry two or three days' rations with them.

Coffee.—A compressed coffee ration, too, would be a great boon, and that can be got in a most portable form, which keeps the freshness and full flavour of the coffee for months in any climate.

Jam, &c.—The jam and marmalade were greatly appreciated and were most useful. These should never be omitted from the scale of rations on service.

Salt.—Compressed salt, in small tablets which could be carried in the men's haversacks, is also wanted. That also is to be got in very portable form.

Rum.—As part of the ration (and, in my opinion, a most important part) it will be suitable here to consider the usefulness of the rum issue.

No knowledge is so useful as experience, and it is not possible for any one who observed, intelligently, the effect of the rum ration in warding off exhaustion and its results, to deny the beneficial effect of the spirit. Like every other thing which contains a potency for good and evil, it has to be given with care and discretion.

A spirit ration at the beginning of a march, or early in the day, would not only be useless, but a positive evil; kept in reserve, as it were, to be used at the critical moment, it is undoubtedly one of the very best preventives, not only of exhaustion, but of those diseases which seize upon all those who have fallen into a state of exhaustion, the result of continued exertion in trying climatic conditions.

The men themselves, who in every way showed a determination to follow and carry out all the advice given to them, soon found out the value of rum when taken at the proper time. Even men who had been total abstainers for years, and had no wish to change their principles or custom of life in ordinary circumstances, saw the good effect of the rum ration, and took it daily until they returned to the transport ships, when they gave it up. One and all, they felt it had done them good, and in all probability prevented serious illness, and they took it just as they did the quinine, as a medicine. There was a strong concensus of opinion on the subject, if not, indeed, a universal agreement. Bovril, beef tea, strong soup, and also chocolate or cocoa, had not the same reviving effect, though their value as preventives of exhaustion were fully recognised.

Water.—It was well known from the experience of the Expedition of 1873–4 and others that it would be almost impossible to get good water, and every endeavour was made to procure the most efficient filter in something like a portable form.

It was thought that the Pasteur-Chamberland principle was the best if it could be made sufficiently light and portable. Messrs. Defries & Co. took the matter up and did all they could, in the short time at their disposal, to turn out a filter, not too heavy for transport, and which would, it was hoped, deliver 24 gallons per hour of pure sterilised water. Unfortunately, these did not turn out to be mechanically perfect. The construction was defective in many ways, which it was, perhaps, hardly possible to see until the filters were tried in the field. At any rate they could not be made to deliver more than an average of five to six gallons per hour. They were of no use with troops on the line of march, therefore, but they were kept working at the Base Hospital and at Prahsu, where their working could be carefully superintended, and attention paid to their cleaning, as well as their frequent defects corrected. There were ten of these filters sent out for land service. They were thus distributed:—4 to the Base Hospital, 4 to No. 1 Stationary Hospital, Prahsu, and 2 to Mansu.

During the voyage from Liverpool to Cape Coast Castle on board the ss. "Loanda" every one of the ten filters was carefully tested, and it was found immediately that the delivery could not be got to exceed an average of six gallons per hour, even in those that were in perfect working order. Three were useless because of leakages, in one case from a badly fitting cover, and in the other two from broken pipe joints. These defects were doubtless due to the haste with which the filters had to be made. But even at that early period, on board ship, it was found that the pumping gear was hard to drive, much too hard for anyone to keep up for any length of time. That was found from actual trial by others as well as by myself on board ship. When the filters were taken into actual use in the field this difficulty was found to be an almost

insuperable obstacle to their use, as it was next to impossible to get natives to work them. The defects and disadvantages are given in detail in the special report upon these filters, called for by the Director-General. The other filters which were sent out also proved failures through some mistake about the charging material.

On the failure of the filters, boiling was relied upon as the chief means of purification.

In every camp on this side of the Prah, storage for water and the means of boiling it were provided. No water was used for drinking purposes which had not been boiled, and where possible, as in standing camps, it was also filtered, or rather aërated through wood charcoal in native chatties.

Nothing could have been more uninviting than the appearance of the water at many of the halting places, or of the holes from which it was drawn. The widening of a sluggish stream, just under a village, the neighbourhood of which drained into the stream, or perhaps into the hole itself, was generally the only available source. The surface of the water was totally covered with aquatic plants such as the Ententrowa, and the water itself was often as thick as good pea soup, and either of a muddy or dark brown colour, and had a strong smell. The Ententrowa was not, as might at first have been expected, a source of danger or defilement, but the reverse, it protected the water from many impurities and from the sun's rays and their chemical activity, and at the same time kept it cool. But water such as that was not a good or safe drinking water. Now and then alum or permanganate of potash was used, but boiling was the general rule, and was found to be sufficient, especially if time could be first given to permit of the deposit of all suspended matter. That this was efficient is shown by the small number of dysenteric cases or other bowel complaints.

On a subsequent page is given a table showing the results of analyses of water as far as Prahsu.

Where the Pasteur-Chamberland filters could be used they gave additional immunity from disease. The Medical Officer in charge of the Base writes, with reference to these filters, as follows:—

"Culture examination of the water could not be undertaken, but I think the water is rendered perfectly pure after passing through these filters, as not a single case of dysentery, and hardly any diarrhœa occurred in the Detachment Medical Staff Corps, or patients in the Base Hospital, though these diseases were somewhat prevalent up country; the cases of remittent fever in the detachment were traced to special exposure. Every one at the Base Hospital used this water, and I attribute the immunity from disease in the detachment and improvement in condition of patients in hospital to its use."

It is of the utmost importance as well as a matter of the greatest urgency that effective steps should be taken either to find a filter that will answer all the requirements on service in countries in which only bad water is obtainable, or to get one invented. With this object I would strongly urge the appointment of a good committee of practical experts, constructive as well as analytical. With the many small wars, in unhealthy countries, in which our army is constantly engaged, it is of vital importance that the very best and most efficient form of filter in a portable form should be always available for issue to any force likely to take the field. It may be well to have a certain number of large ones, though they should not be too large to prevent their being carried over a difficult country—with a free delivery for use at such places as the base hospital, stationary hospitals on the lines of communication, standing camps, &c., but I am of opinion that small, light, portable ones, to give an immediate supply for, say, 10 men, would be both more useful and more convenient. The sooner an efficient portable filter is found the better for the army.

It would be wiser still, perhaps, to consider whether sterilizing by heat is not more efficacious than filtration in any form.

There are several forms of such sterilizers now made, and if one can only be got in portable form, safety from diseases attributable to bad water might be assured.

Personal Hygiene.—The personal hygiene of officers and men was a most important consideration, and suggestions were issued, with the approval of the Officer commanding the Expedition, as follows:—

Hints on Personal Hygiene for the Officers, Warrant and Non-Commissioned Officers, and Men, of the Ashanti Expeditionary Force.

1. Avoid fasting, especially in the early morning, which is the time of lowest vitality. A cup of hot soup, cocoa, or coffee, with bread and butter or a biscuit should be taken immediately on rising.

Two grains of quinine should be taken immediately after.

2. Avoid hanging about in shirt sleeves, or half dressed, in the early morning.

3. Avoid the sun. Always wear a helmet between sunrise and sunset.

Wear a flannel belt, or kummerbund, at night. See that it is dry before putting on; never wear a damp one.

4. If heated, dry rub body and change underclothing. If no change available hang underclothing in the sun or before a fire while dry rubbing. The dry rubbing re-establishes checked surface circulation.

5. Be sure bowels are opened daily, if not, or if attacked by looseness (diarrhœa), apply at once to a medical officer.

6. Drink no water that has not been boiled and filtered.

Filtered and sterilized water will be supplied in tanks at most of the halting places. Water-bottles should be filled from these tanks.

7. Keep feet and legs as dry as possible. Change boots and socks immediately on arrival in camp after a march, and thoroughly wash and dry feet. Dry also the socks taken off.

N.B.—As Guinea worm is very prevalent, the men should not be allowed to paddle or wash their feet in pools, but only in water brought for the purpose, and that boiled if possible.

8. Do not eat or drink anything but what is supplied to the Expedition by Government.

W. TAYLOR, M.D., Surgeon-Colonel,
Principal Medical Officer,
Ashanti Expeditionary Force.

Just before Sir Francis Scott left England for Cape Coast Castle the necessity of providing a coffee shop or refreshment room on the beach, at the place where troops were to land, was pointed out. The fatigue and consequent prostration of landing stores can be counteracted by the provision of soup, beef tea, bovril, or cocoa, coffee, or tea, and many a man is saved from an attack of fever, if he can get, close at hand—he will not go away to look for it—a pick-me-up of the above nature, which just prevents the exhaustion that is sure to be followed by sickness.

Officers commanding, medical and other officers of units, took up the matter of personal hygiene with the greatest interest, and this had the very best effect on the men in two ways: directly, in so far that every individual man was carefully watched and made to take care of himself, even to drying and rubbing down after exertion on a march, and it was also seen that he had some kind of nourishment to ward off exhaustion, and enable him to recover; indirectly, in that the men themselves, seeing the great personal interest their officers took in them, played up and really did everything they knew to keep in good health, and avoid every source of danger. It is quite impossible to exaggerate the beneficial effect this had; non-commissioned officers and men took the deepest interest in everything concerning the preservation of health, and spoke on the subject with the greatest intelligence. The idea that Guinea worm gained entrance to the system through the skin of the legs was an excusable fraud, as it was possible that if men thought they could bathe or wade in pools, they were likely to lave or splash the water into their mouths, it was an extra precaution.

The first principle after that to avoid all doubtful water, which was impressed upon all, was the importance of never beginning the day without food, even a cup of cocoa, tea, or coffee, and a biscuit. Both officers and men were warned against fasting, or beginning a march or any duty before taking nourishment of some kind, especially in the early morning, and to their attention to this rule is to be attributed, to a great extent, the general good health.

The non-commissioned officers and men were warned against venereal disease, which is of a most virulent type on the coast, and they acted on the warning in the most loyal way, with the result that there was not a case of syphilis contracted there.

Hospitals, &c.—Bearer Company.—Surgeon Major W. O. Wolseley (in command), Surgeon-Captain D. M. O'Callaghan, and Surgeon-Lieutenant C. G. Spencer, 1 warrant officer, 6 non-commissioned officers, and 23 men of the Medical Staff Corps.

The equipment consists of 80 cots or hammocks with 480 carriers. There were also 160 carriers for stores and personal equipment.

The following was the proposed working of the Bearer Company in action :—

First line.—16 cots with 64 carriers under Surgeon-Captain O'Callaghan, each cot under the immediate charge of a private, Medical Staff Corps, who carried a surgical haversack and water bottle. Every four cots under the supervision of a non-commissioned officer. Thus there would be 16 privates and 4 non-commissioned officers, 2 of the latter to be equipped with a field companion and water bottle each. These to accompany the fighting line.

Dressing station.—Surgeon-Major Wolseley and Surgeon-Lieutenant Spencer with 1 non-commissioned officer (compounder) and 4 privates (1 as cook).

Mobile Field Hospital.—Surgeon-Major R. Porter in charge with 1 non-commissioned officer and 4 men, Medical Staff Corps.

The remainder of the 80 cots of the Bearer Company to form a reserve under a non-commissioned officer and 3 privates Medical Staff Corps and to be available either for the conveyance of wounded from the field hospital to the stationary hospital at Prahsu, or in case of necessity to strengthen the 1st line.

The extra carriers (64) to be employed in cutting firewood, carrying water, &c., &c., for the field hospital and Bearer Company.

Hospitals.—Lines of Communication.—Prahsu.—A stationary hospital of 60 beds, viz.: for 5 officers, 45 European non-commissioned officers and men, and 10 non-European troops, was organised at Prahsu. It was built of bamboo, the floor raised three feet above the ground. In the huts used as wards bamboo frames were put up, on which the ends of the stretchers were fitted; the stretchers made very comfortable beds. Huts were also erected for use as surgery, stores, and office.

Surgeon-Lieutenant-Colonel B. M. Blennerhassett was in charge and he had under him Surgeon-Captain E. Eckersley, 1 staff-sergeant, 2 corporals (1 as cook), and 7 privates (1 as compounder).

This hospital, together with those at Assin Yankumassi, Mansu, and Dunkwa, was non-dieted, but an abundant supply of extras was available to supplement the field rations of the patients.

Mansu.—At Mansu, halfway between Prahsu and the base, was No. 2 stationary hospital, with its two sections, one at Assin Yankumassi and the other at Dunkwa, each of 20 beds. These were used more as rest houses for the sick passing back to the base than as hospitals, though the sick of the station were admitted to and treated in each, and each was fully equipped for the reception of 20 sick.

Surgeon-Major J. W. Beatty, with 1 sergeant and 2 men, was at Mansu, Surgeon-Captain H. A. Cummins was in charge at Assin Yankumassi, with 1 corporal and 1 private, Medical Staff Corps, and Surgeon-Captain J. F. Burke, with 1 corporal and 1 private, at Dunkwa.

Base hospital.—The base hospital (dieted) was organised for 75 beds, this included 5 for officers and 15 for non-European troops. It was situated on Connor's Hill, between two and three hundred feet above the sea, isolated and open, overlooking the town of Cape Coast Castle, so situated as to catch every breath of air.

Surgeon-Major E. M. Wilson was in charge, assisted by Surgeon-Major C. R. Bartlett and Surgeon-Captain E. Corcoran, 1 staff-sergeant, 1 sergeant, 2 corporals, and 8 privates, Medical Staff Corps.

The Base Depôt of medical stores was situated here in charge of Lieutenant and Quartermaster C. Arbeiter, with 1 sergeant and 2 men, Medical Staff Corps.

The buildings found on Connor's Hill, those of the Colonial School—after slight repairs to the floors and roofs—were well suited for hospital purposes. They gave accommodation for 5 sick officers and 34 non-commissioned officers and men, and that with the possibility of separating serious cases. There were, besides, a guardroom, dispensary, office, and kitchen.

Twelve marquees were pitched, in four of which 32 more sick were accommodated, and the remainder were used for stores.

The ventilation in the huts was good, each patient having over 1,000 cubic feet of space, the windows were ample and opposite to each other, and the doors always open. In the marquees occupied by sick the curtains were rolled up all day and generally on the lee-side at night.

The latrines were entirely on the dry earth system, separate accommodation being provided for officers, European troops, and West Indian troops and native labourers. The "latrine drums" were emptied three times a day into pits dug at some distance to the lee-side of the camp, the "soil" being covered with fresh earth and carbolic powder. The pits were filled in and fresh ones dug when necessary, the sites of the old ones being marked with a pole to prevent their being accidentally disturbed. All washing and bath water was carried to an appointed place at no great distance, and discharged into a "shute" down the hill, but dirty water (urine, &c.) was disposed of in the latrine pits.

A permanent gang of 25 hospital sweepers was organised and paid by the hospital for these duties during the whole of the expedition. All refuse from wards and camp-sweepings was disposed of in the same way, except that everything that could be burned was destroyed on a heap, which was constantly kept burning on the lee-side of the camp, the ashes being utilised as "dry earth" for the latrine drums.

A tank was found on the site with a capacity of 10,000 gallons and was used as a store cistern for the water carried by 30 women, who were engaged as a permanent gang for this purpose. They brought between 200 and 300 gallons daily from the rain water tanks in the Castle. In this way the issue was regulated and waste prevented. Besides this quantity about 100 gallons of shallow well-water were supplied daily in open butts for washing purposes and use of natives, who otherwise would have been a source of annoyance in asking for the reserve supply of water, viz., out of the tank.

The drinking water was at first boiled and made into tea, but afterwards, when the "Pasteur-Chamberland filters" arrived, two natives were told off to keep the accompanying aluminium tanks full of filtered water. The filter tanks were kept locked and the issue of filtered water from them regulated.

The filters frequently required repair, but the supply was sufficient for all patients, as well as for the officers of the Army Medical Staff and for the detachment Medical Staff Corps.

All sick from the front, whom it was considered advisable to remove from shore, were, as soon as possible, transferred to the hospital ship "Coromandel" whence they were either returned to duty or invalided to England as was found necessary.

The sick were transferred from the beach to the hospital ship in the ordinary surf boats, one of which was fitted up specially for the conveyance of serious cases. Two wooden stanchions were fitted in the boat, one at each end; in the upper end of each was a notch or slot, into which a long pole was fastened about three feet above the thwarts and extending from one end of the boat to the other. Two cots could be hung on the length of this pole, and swing just clear of the thwarts. For the last week when the number of serious cases to be sent on board was much greater, it was necessary to fit up two more surf boats in that way. No accident of any kind occurred during the transport of sick from the shore to the vessel.

Hospital Ship.—The ss. "Coromandel," specially fitted up in England as a hospital ship, was equipped for 110 beds, including 20 for officers; this accommodation could be increased, if necessary, by 40 additional cots for non-commissioned officers and men, thus bringing up the total to 150 beds.

Brigade-Surgeon-Lieut.-Colonel E. Townsend, was in charge, and under him Surgeon-Majors J. R. Dodd and J. Hickman, and Lieutenant and Quarter-Master E. Lines, Army Medical Staff:—

Acting Superintendent J. A. Gray	- -	Army Nursing Staff.
Nursing Sister H. McCurdy	- - -	
Nursing Sister C. H. Potts	- - -	
1 warrant officer	- - - - -	Medical Staff Corps.
1 staff sergeant	- - - - -	
1 sergeant	- - - - -	
2 corporals	- - - - -	
15 privates	- - - - -	

The ship was in every possible way well suited for the purpose for which she was hired, and the sick on board were as comfortable as was compatible with the fact of being at sea.

I would call special attention, however, to Brigade-Surgeon-Lieut.-Colonel Townsend's remarks as to her having been used to carry troops as well as sick. That is fatal: only a small number can be accommodated, but that small number effectively interferes with the comfort of the sick, both officers and men, and entirely prevents that expansion and segregation which should be always possible in case of epidemics.

The supplies on board were ample, and included everything that could possibly be required for the sick, even grouse and other game from Her Majesty's preserves.

A report on the vessel by Brigade-Surgeon-Lieut.-Colonel E. Townsend, M.D., is forwarded herewith.

Hospital Supplies.—On the whole these were excellent in quality and abundant in quantity.

I cannot speak too highly of the medical comfort boxes; the contents were most judiciously selected and arranged. As regards the stimulants, I should like to mention that whilst the quality of the spirits, both brandy and whiskey, left nothing to be desired, that of the wines, particularly champagne, was not in all cases so good as it might have been. It is essential, in expeditions such as this, that everything for the consumption of the sick should be of the best quality obtainable.

The condensed milk, both "sweetened" and "unsweetened," was very good; the "unsweetened" was preferred in most cases, its only fault being that it would not keep more than two days after the tin was opened.

The bovril and extract of beef were both good.

Calves' feet jelly, when iced, was found to be much appreciated, and was of the greatest advantage in the treatment of serious cases.

Roast preserved fowl was very good, it was mostly used in the field and stationary hospitals, and formed a valuable substitute for the ordinary field ration in cases where the patients were unable to eat the latter.

Ice was found to be of the very greatest service, and it was used on the hospital ship, at the Base Hospital, and at Prahsu, where it was supplied daily by means of special carriers from Cape Coast Castle. One instance of its great value in such a climate as that of the Gold Coast is given by Surgeon Lieut.-Colonel Blennerhasset in charge of the stationary hospital at Prahsu, who states:—

"One man who was insensible for 18 hours recovered completely after the continued application of the 'ice cap.' This man would most certainly have died without it."

The cooking, as a rule, was done in the ordinary field kitchens. Congo stoves were used at the Base and at the stationary hospital at Prahsu. At the former only one stove was used, as a kitchen with a cooking range was taken over with the other buildings when the hospital was organized. The Medical Officer in charge reports very favourably on the one that was used there.

As regards the two used at Prahsu the Medical Officer in charge reports:—

"I cannot speak too highly of their advantages. They could, if necessary, have supplied boiled and baked provisions daily for 120 sick men "The stove was found especially useful in baking puddings such as rice or sago, and either could be supplied ready for use within half an hour of lighting the fire.

A joint of meat of moderate size could be served ready for the table within an hour. With reference to boiling they are very efficient, being quick in action and requiring only a small amount of fuel, compared with the results. The advantages of this stove are its simplicity of construction, its lightness and portability, and its durability on service. It is easily put together and as easily packed. The fuel used at this station was well dried wood, which was obtained in abundance."

Medicines, Surgical Materials, &c.—The supply of medicines both as to quality and quantity left nothing to be desired. There was no scarcity of anything.

The compressed (tabloid) form of medicines on trial were found to be most convenient and of excellent quality. To be able to take out at once the required dose of any medicine without having to weigh or measure it is a convenience which cannot be expressed in words. Time is saved to an extent that can hardly be realised, and so is space, for a fitted dispensary, or even a dispensary table is unnecessary.

The quality of medicines in the compressed form was so good that no other should be taken into the field.

It should never be forgotten that in all countries where coolie transport is alone available medicines or other supplies should not be put up in packages weighing more than 50 lbs. I had the very greatest difficulty in getting the field panniers carried. They were constantly put down, the coolies either running away or refusing to carry them further.

Some salines in tabloid form are very much wanted.

Though great improvement has been made in the compression of medicines, there are still some substances which lose their tabloid form if submitted to shaking, and to prevent this care has to be taken to fill up with cotton wool the space in the bottles caused by the removal of tabloids.

The "Congo" cases supplied are almost ideal ones for active service. They are light, yet strong, and the arrangement of the materials and medicines is as nearly perfect as possible. The only suggestion I have to make is that the name of the medicine in each bottle should be printed on its flat-headed stopper so as to save the necessity of taking out a lot of bottles before getting the right one.

The "Congo" belt is also almost perfect for work in the field, and for treatment of cases occurring on the line of march. An orderly can carry the belt without feeling it, and a plentiful supply of medicines is thus at hand, and can be administered promptly.

Quinine was issued prophylactically, but, like Surgeon-General Sir A. D. Home in the last expedition, I am not able to say that it is effective. Indeed, I am rather inclined to the opposite opinion. Officers and men who had taken the drug for weeks (as much as 300 grains) were apparently as liable to fever as those who had not taken any. There was more than one striking example in which perfect health was maintained without medicine of any kind. Personal hygienic precautions I believe to be a much better safeguard than quinine or any other so-called prophylactic medicine. Arsenic is often much more useful than quinine in cutting short ague and remittent fevers, but it must be given boldly, in large doses, such as 40 minims or one drachm of Liq. Arsenicalis. No harm results if the precaution of giving a cupful of milk, barley water, or soup immediately before the dose is taken. I have never seen the slightest bad result from its use in these doses.

Duties of Troops.—The duties of troops may in general terms be said to have been confined to marching.

The Royal Engineers had very hard work and constant exposure in making roads, clearing sites, putting up the telegraph lines, &c., &c. The men of that corps worked almost entirely in the mephitic exhalations of the dense and poisonous forest. Yet they did not give the highest admission rate.

The men of the Army Service Corps and the Ordnance Store Corps had by far the most trying time. The officers and men of both corps were at work in the blazing sun and in the oven-like heat of Cape Coast Castle, landing, storing, and forwarding supplies from daylight till dark during the whole time the expedition lasted, and it is quite wonderful that more of them did not break down. A good many did, as is shown by the fact that men of these corps gave the highest admission rate.

The men of the Medical Staff Corps had also very trying work, but their admission rate was not high, in fact it was the lowest of any with the exception of the Special Service Corps.

Work seemed to act in two opposite directions: first, as a preventive of sickness, or rather as a means of preserving health; and, second, as a depressant and a predisposing cause of sickness. The latter was the result only when proper personal hygiene was not attended to. It was generally found that the men who came sick from among the hard-worked ones had either neglected to have food in the early morning before going to work, or had been guilty of some other indiscretion, such as wearing an insufficient headdress or sitting in a draught in clothes saturated with perspiration.

It was observed that without doubt men could work hard all day long in the climate of the West Coast if only they paid proper attention to a few simple rules regarding the preservation of their own health.

The marches were very trying, and especially the first two, as the road was hilly and without any shelter from the direct rays of the sun. The men, too, had just landed and were out of condition after their confinement on board ship. The 2nd West Yorkshire Regiment suffered severely, as many as 88 having fallen out on the first march, a distance of only seven miles.

Each man had to carry 70 rounds of ammunition from Cape Coast Castle to Kumassi and most of the way back, but it is only excusable on the ground of urgent military necessity, that men who had just landed from an enervating voyage to march through a notoriously unhealthy district of Equatorial Africa should be so burdened.

The longest march was fifteen miles, the shortest four miles, and the average distance of the marches was ten miles. Some of them were much worse than others, owing to the nature of the road or rather track through the forest, part of which was muddy and very slippery.

Sickness and Mortality.—In the following tables are given statistics showing the sickness and mortality among the troops composing the Expeditionary Force :—

TABLES showing the Admissions to Hospital, and the Deaths among the Officers and the Warrant Officers, Non-commissioned Officers, and Men of the Ashanti Expeditionary Force, from 14th December 1895 to 7th February 1896, with the per-centages of Strength.

OFFICERS.

Corps.	Strength.	Fevers.		Sunstroke and Apoplexy.		Dysentery and Diarrhœa.		Other Causes.		Total.	
		Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
Head Quarter Staff	13	6	2	—	—	—	—	1	—	7	2
Royal Horse Artillery	1	1	—	—	—	—	—	—	—	1	—
Royal Artillery	2	1	—	—	—	—	—	—	—	1	—
Royal Engineers	4	2	—	—	—	—	—	—	—	2	—
Special Service Corps	12	1	—	—	—	—	—	—	—	1	—
2nd West Yorkshire Regiment.	20	5	—	—	—	1	—	—	—	6	—
Army Service Corps	13	6	—	—	—	—	—	1	—	7	—
Army Medical Staff	24	9	—	—	—	—	—	—	—	9	—
Ordnance Store Department.	4	—	—	—	—	—	—	—	—	—	—
Army Pay Department	3	1	—	—	—	—	—	—	—	1	—
2nd West India Regiment.	19	8	—	—	—	1	—	—	—	9	—
Total	115	40	2	—	—	2	—	2	—	44	2

Per-centage of Admissions and Deaths to Strength.

Corps.	Fevers.		Sunstroke and Apoplexy.		Dysentery and Diarrhœa.		Other Causes.		Total.	
	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
Head Quarter Staff	46·16	15·39	—	—	—	—	7·69	—	53·85	15·39
Royal Horse Artillery	100·00	—	—	—	—	—	—	—	100·00	—
Royal Artillery	50·00	—	—	—	—	—	—	—	50·00	—
Royal Engineers	50·00	—	—	—	—	—	—	—	50·00	—
Special Service Corps	8·33	—	—	—	—	—	—	—	8·33	—
2nd West Yorkshire Regiment.	25·00	—	—	—	5·00	—	—	—	30·00	—
Army Service Corps	46·16	—	—	—	—	—	7·69	—	53·85	—
Army Medical Staff	37·50	—	—	—	—	—	—	—	37·50	—
Ordnance Store Department.	—	—	—	—	—	—	—	—	—	—
Army Pay Department	33·33	—	—	—	—	—	—	—	33·33	—
2nd West India Regiment.	42·11	—	—	—	5·26	—	—	—	47·37	—
Total	34·78	1·73	—	—	1·73	—	1·73	—	38·24	1·73

European Warrant Officers, Non-commissioned Officers and Men.

Corps.	Strength.	Fevers.		Sunstroke and Apoplexy.		Dysentery and Diarrhœa.		Other Causes.		Total.	
		Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
Royal Artillery	11	3	—	—	—	—	—	1	—	4	—
Royal Engineers	57	20	—	—	—	3	—	1	—	24	—
Special Service Corps	251	57	—	—	1	1	1	4	—	63	2
2nd West Yorkshire Regiment.	385	139	—	—	1	11	—	25	—	175	1
Army Service Corps	62	35	—	—	1	5	—	2	—	42	1
Medical Staff Corps	85	29	—	—	—	1	—	—	—	30	—
Ordnance Store Corps	26	15	—	—	—	—	—	2	—	17	—
Army Pay Corps	4	—	—	—	—	—	—	—	—	—	—
2nd West India Regiment.	3	1	—	—	—	1	1	—	—	2	1
Total	884	299	—	—	3	22	2	35	—	356	5

Per-centage of Admissions and Deaths to Strength.

Corps.	Fevers.		Sunstroke and Apoplexy.		Dysentery and Diarrhœa.		Other Causes.		Total.	
	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
Royal Artillery	27·27	—	—	—	—	—	9·09	—	36·36	—
Royal Engineers	35·09	—	—	—	5·26	—	1·75	—	42·10	—
Special Service Corps	22·71	—	—	·40	·40	·40	1·55	—	24·66	·80
2nd West Yorkshire Regiment.	36·10	—	—	·26	2·84	—	6·49	—	45·43	·26
Army Service Corps	56·45	—	—	1·61	8·06	—	3·23	—	67·74	1·61
Medical Staff Corps	34·12	—	—	—	1·17	—	—	—	35·29	—
Ordnance Store Corps	57·69	—	—	—	—	—	7·69	—	65·38	—
Army Pay Corps	—	—	—	—	—	—	—	—	—	—
2nd West India Regiment.	33·33	—	—	—	33·33	33·33	—	—	66·66	33·33
Total	33·82	—	—	·34	2·49	·22	3·96	—	40·27	·56

NON-EUROPEAN NON-COMMISSIONED OFFICERS AND MEN.

Corps.	Strength.	Fevers.		Suustroke and Apoplexy.		Dysentery and Diarrhœa.		Other Causes.		Total.	
		Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
2nd Battalion West India Regiment.	375	93	1	—	—	6	—	21	—	120	1

Per-centage of Admissions and Deaths to Strength.

Corps.	Fevers.		Sunstroke and Apoplexy.		Dysentery and Diarrhœa.		Other Causes.		Total.	
	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
2nd Battalion West India Regiment.	24·80	·27	—	—	1·60	—	5·60	—	32·00	.27

The higher ratio of sickness in the 2nd Battalion West Yorkshire Regiment, was to be expected. The regiment was on its way home from a tour of service in India, Burma, and Aden, and the men had suffered a good deal from fever in those stations.

It is impossible to state accurately the number of those admitted during the expedition who had previously suffered from malarial fever, but men who have served a number of years in malarious countries without having had fever, *i.e.*, men acclimatised, would in all probability have been able to resist the climatic influences of the West Coast of Africa, while those who had become more or less affected by malarial poison, and in whom it had shown itself by attacks of debilitating disease were in the worst possible condition for service in such a climate. Any comparison, therefore, between the sickness of the 2nd West Yorkshire Regiment and that of any other unit must be misleading.

The only peculiarity about the type of the diseases was the depression which preceded and accompanied the attacks, and, in the case of remittent fever, the malignant intensity of the disease. The very strongest men succumbed at once. It would be difficult to find men of finer physique than the two officers who fell victims to the fever of the country, and yet they seemed to be overcome and to lose all hope from the very commencement of their attacks.

One of them, too, had done a good deal of big game shooting in South Africa and other trying countries, and had often suffered from attacks of fever, but immediately he became ill at Prahsu he gave up all hope and became depressed and despondent. His was a typical case of the malignant type with all the worst symptoms (high temperature, hæmaturia, &c.), and might have been mistaken for yellow fever but for the absence of vomiting.

The same depression and abandonment of hope were seen in the men of the 2nd Battalion West India Regiment, only in an exaggerated form.

Quinine did not seem to have any power in controlling or influencing the disease, and in the fatal cases, arsenic, even in the largest doses, appeared to be equally ineffective.

One of the fatal cases of dysentery showed a similar malignity—that of a private of the Leinster Regiment. His disease was without doubt attributable to his having drunk water from a filthy puddle not long before he became ill. The other (a Company Sergeant-Major, 2nd West India Regiment) was an ordinary case in the case of a person of a man debilitated by long service on the West Coast and in the West Indies.

The statistics of sickness of the 2nd West India Regiment give a very slight idea of the inefficiency in the regiment due to that cause. The day after disembarkation more than the accommodation set apart for non-European troops at the base hospital was taken up, and large numbers were kept attending daily. There were cases of fever, some of them severe, but as a rule slight.

The comparatively small amount of sickness and mortality amongst the troops (both European and non-European) was, in a great degree, due to the interest in and care for the men shown by the officers with them.

Transport of Sick.—The following table shows the plan proposed for the transport of sick and wounded :—

	Cots or Hammocks.	Carriers.
Line of communications from Cape Coast Castle to Prahsu.	210	1,260
Regimental units as follows :—		
Royal Artillery	2	12
Royal Engineers	2	12
Special Service Corps	6	36
2nd West Yorkshire Regiment	10	60
Bearer Company and Mobile Field Hospital	80	480
Do. for personnel	—	160
Do. and equipment	—	100
Reserve at Prahsu or beyond	100	600
Total	410	2,760

It was afterwards found impossible to obtain the 100 reserve for beyond Prahsu, and a hammock train was organised between that place and Kwisa, with 25 cots at each of the stations of Esiamen Kuma, Brafu Edru, and Kwisa, and 15 at Fumsu, because of the short distance to the stations on either side of it.

Kwisa was then the advanced depôt, and all sick transport from points beyond was to be done by the bearer company and the regimental transport, 100 cots in all. These would have been sufficient except, perhaps, in the event of severe fighting with many wounded.

As a matter of fact, no sick were sent back to the base from beyond Kwisa, but all not returned to duty were kept in the field hospital and brought back with it on its return to the coast, in rear of the column.

There was no hitch in the transport of the sick, but it will be seen that the original estimate proved to be altogether inadequate.

The arrangements for the transport of sick were on the whole very satisfactory, but there are one or two improvements I would suggest.

I realise that it would not be practicable, or even advisable, to keep up a long line of transport for sick alone. It would be a waste of good working material which could be turned to practical use every day, and, moreover, would be extravagant. At the same time it seemed to me equally useless and wasteful to make the carriers of each section do their journey daily, whether there were sick to be carried or not. This was supposed to keep them in training and to give them practice in carrying the cots, but as a matter of fact they never did carry them when empty in the proper way, but one man carried the cot or hammock on his head, and the others strolled along just as they liked. These men would have much more usefully employed in cleaning up the camp they belonged to, carrying water, bringing in firewood, &c., and besides they might have been regularly trained how to carry sick or wounded men without jolting, which very few of them knew how to do.

The hammock is more comfortable than the navy cot for ordinary cases, and the string hammock is cooler than the canvas one.

The navy cot is more suitable for serious cases, but its sides are too high, *i.e.*, the cot itself is too deep, and is therefore very hot and suffocating. I had the lacing of the canvas sides undone in many cases till they were not more than six inches in height, which was quite enough to prevent a man falling out, and allowed him to get fresh air, and to feel as cool as was possible in the climate. It would have been almost certain death to put a case of sunstroke into the depths of a navy cot.

It is very necessary to see daily that all the string or rope fastenings are sound and strong, as if they break, a nasty fall, with the chance of serious consequences, is inevitable.

The transport service, though subjected to a very severe strain, never broke down. There was no delay in sending sick to the base, and no man was injuriously affected through failure of transport. That is saying a good deal when the numbers, and the distances they had to be carried, are borne in mind.

The sick were brought to the base with speed and in comparative comfort, and even put on board the hospital ship without injury or discomfort, but there was no provision made for their conveyance to a temperate climate.

The regular mail steamers were not suitable, either as to accommodation, supplies, or cooking, even for ordinary invalids, and certainly not for serious cases, either officers or men, requiring rapid removal.

Concluding remarks.—Officers commanding units took every possible precaution to keep their men in health, and to prevent them doing anything likely to lessen their power of resisting morbific influences.

Not only companies and sections, but individuals were looked after by officers personally, who saw that each man rubbed himself down and changed into dry underclothing at the end of each march; that he had his tea, cocoa, or soup before starting and immediately on arrival in camp, and that he drank no water which had not been boiled.

The men themselves appreciated that personal interest and care, and in the most praiseworthy way did everything they could to help towards the end

aimed at. Never before has the influence of personal interest on the part of the officers in the welfare of their men been more fully appreciated, or had such markedly beneficial results, and commanding and company officers have every reason to be proud of them. That personal care was unremitting and unwearied, it had the very best effect directly and indirectly, not only upon the health, but morally, by encouraging the men to bear the hardships of the expedition cheerfully, and to strive individually to keep themselves fit for whatever duty might fall upon them.

I have not hitherto referred to the work of the officers of the Army Medical Staff, and the warrant and non-commissioned officers and men of the Medical Staff Corps, simply because it was beyond all praise. One and all were permeated with and stimulated by the determination to do all in their power for the officers and men of the Expeditionary Force; to conserve their vital energy and resisting power of disease; to keep them from committing any error in personal hygiene likely to induce a departure from health; to protect them from every influence with an unhealthy tendency, and to care for, nurse, and treat them when sick. In spite of often being sick themselves all ranks of the Medical Department worked with the utmost energy and zeal, and with a spirit of the most self-denying devotion to a sacred duty.

REPORT on WATER examined on March up from Cape Coast Castle to Prahsu.

Whence obtained.	Colour.	Clearness.	Sediment.	Taste.	Smell.	Litmus and Turmeric.	Chlorides by Argent. Nit.	Sulphides by Plumbi Acet.	Ammonia, Nessler's Solution.	Character.
Jaykuma (water-hole) -	Dark reddish-brown.	Semi-opaque.	Considerable.	Bitter.	Offensive.	Acid reaction.	Considerable.	Considerable.	Considerable.	Very bad; undrinkable.
Akroful (sluggish stream) -	Light brown.	Fair.	Detritus, slight vegetable matter.	Muddy.	None.	None.	Trace.	None.	Very slight colouring.	Fairish, but requires boiling.
Dunkwa (water hole) - -	Light brown.	Fair.	Detritus, slight vegetable matter.	Little.	None.	None.	None.	None.	None.	Drinkable after boiling.
Mansu - - - -	Muddy.	Opaque.	Detritus.	None.	None.	None.	None.	None.	None.	Fairly good.
Baracu - - - -	Light; muddy.	Less opaque.	Little detritus.	None.	None.	None.	None.	None.	None.	Fairly good.
Prahsu - - - -	Light brown.	Some opacity.	Detritus.	Slightly leafy.	Slight vegetable.	None.	Very slight.	None.	None.	Good after boiling.

NOTE.—Jaykuma water showed presence of lime, and appeared worse after boiling. This extraordinary occurrence might have resulted from the presence of animal and vegetable matter in the native utensils used for its reception.

II.—Report on the Hospital Ship "Coromandel."

By Brigade-Surgeon-Lieutenant-Colonel E. Townsend, M.D.,
Army Medical Staff.

It having been settled that a hospital ship was to be sent out as a supplement to the Ashanti Field Force, the P. and O. steamer "Coromandel" was chosen, and I may say here that the success of the "Coromandel" as a hospital ship was in a great measure due to the great care, attention, and judgment shown in the selection of the ship, the arrangement of the great changes necessary in her, and the working out of the consequent details. The "Coromandel" being an ordinary passenger ship of about 5,000 tons, a great many changes had to be made before she was fit for use.

Accommodation for Sick Officers.—For the accommodation of sick officers, groups of three of the ordinary cabins of the ship were thrown into one, and the cabins thus improvised were large, roomy, and comfortable, well lighted and ventilated, and capable of accommodating four sick officers in each; there were four of these cabins, giving accommodation for 16 sick officers, and there were four spare cabins, when troops were disembarked, each capable of accommodating one serious case, thus giving a total accommodation for 20 sick officers. These cabins were found fairly suitable in most ways, but I would suggest for future guidance—

1st. The latrine and bath-room accommodation was rather too far off; they should be close to the sick officers' cabins, thus lessening the danger of cold, and the distance to be walked.

2nd. The beds used were the ordinary ship's berths; these, though fairly comfortable for the patients, are inconvenient for a close examination of them; cots out from the sides of the cabin, allowing the Medical Officer to get all around the patient, would be more convenient, and allow a freer circulation of air.

Besides the cabin accommodation for sick officers, there was a ward on the starboard side of the saloon under the poop deck, fitted with five swing cots, which proved of great use and showed very clearly the great advantages of this system of fitting when compared with the ordinary ship's berth. This ward was where it was intended to put any badly wounded officers, and from what I saw of its practical use in fever cases, I have no doubt that it would have suited admirably, and that it is the proper system for fitting up all wards for sick on board ship.

Accommodation for Men.—The accommodation for the men was very good. All the first-class cabins were removed from under the poop deck, on the starboard side, which left a very suitable ward in which were fixed 40 swinging cots. Three of these, "pattern B," were fixed in the fore part, and intended for bad surgical cases; these cots were well separated from each other, allowing a cubic space of 770 and a superficial area of 110 feet to each cot, and were well clear of the bulk-heads on all sides, so as to be easily walked around, and were close to the operating room. The other 37 cots were all of "pattern A," and had a cubic space of 630 and 90 superficial feet.

All these cots could be fixed or let swing (practically the men preferred them fixed), and were fitted with a comfortable mattress, a small shelf at the end, and canvas sides.

What used to be the second-class saloon, &c. on No. 3 main deck, was cleared away altogether, and a very good ward made in its place, which accommodated 33 cots, all "pattern A." They were fixed in rows, and had a cubic space of 630 and 90 superficial feet each. This was a very nice ward, extending as it did from side to side of the ship; the ventilation was perfect, and being well away from the engines it was cooler, and there was less noise than in the upper ward.

Both wards were fitted with punkahs, which were pulled by coolies, worked well and noiselessly, and were a great boon while on the coast. Mosquito nets were available, but there was no occasion to use them.

Infectious Ward.—On the poop deck aft the smoking room was fitted up to contain four cots, "pattern A," to be used in case of infectious disease, and it was also fitted to receive two cots, "pattern B" (special fracture cots), in case of any outbreak of erysipelas or anything of that nature, and there were two sets of frames panelled with canvas so fitted that they could be put where necessary on the poop deck, and each, when *in situ*, enclosed a space 10 feet by 6, and entirely open at the top.

On the voyage home, after we landed some men at Gibraltar and were not so pressed for room, I was enabled to give this back as a smoking room, and it was a great boon to the officers, allowing them a place to smoke, without being exposed to cold, and saved many, I have no doubt, from relapses of fever.

Poop Deck.—There was a very fine poop deck about 60 yards long, which allowed plenty of space for the men to sit about, and we had on board a most liberal supply of chairs of various kinds for the use of the sick. On the fore part of the starboard side of this deck I got three tables put up on which the men allowed up could have their meals, while lying off Cape Coast, and as long as the weather permitted on the voyage home (to Las Palmas). I found this of great use as it kept the men more on deck, and allowed the hospital wards to get thoroughly ventilated.

Water Supply.—The water supply was all through of excellent quality and unlimited quantity. The ship had fresh water tanks for 167 tons and the supply was kept up by distilling. There were two sets of distillers on board, Caird and Raynor's, which could make 4,800 gallons per day, and Hockings' condensers, capable of producing 2,000 gallons per day. The ship at her normal work only holds 67 tons, but 100 tons extra space in tanks was placed in her for the voyage to be used in emergency and as ballast. The daily consumption since we left England averaged about 14 tons.

Cooking Galleys.—For the saloon and hospital the ordinary P. and O. Ridsdale galley range fitted for 250 passengers was used. A separate compartment of this was capable of being shut off altogether in case of infectious disease. In the same galley was the bakery in which all the bread, &c., for the saloon, sick, and the troops was baked.

For the use of the troops during the outward and homeward voyages a special troop galley range was put up on the upper deck.

The cooking all through was excellent, and the hospital diets and extras were turned out in a most creditable manner.

Laundry.—The laundry was on the port side of the upper deck; it was specially erected for the voyage, and was fitted with a washing machine and wringer, a rinsing machine, a mangle, and boiling tubs, &c. It was worked by two Europeans, and the work done in a satisfactory manner.

Latrines.—There was ample latrine accommodation; all the old box water-closets were removed and replaced by the new pans open all round; this was a great improvement, the new waterclosets work very well, and cleanliness was ensured.

Ventilation.—This important point was very well attended to and worked very well. In the upper hospital ward there were 19 square ports, 2 × 1½ feet, and on the inside a succession of side windows opening on the upper deck, thus ensuring complete cross-ventilation, and at the stern end of the same ward was a large entry port, which, with the door at the forward end opening into the waist allowed a free circulation of air through the length of the ward.

In the lower ward there were 10 round ports on either side fitted with what may be called metal wind-sails, which could be fitted so as to catch any breeze, and ensured a perfect cross-ventilation. Besides there were four openings communicating with the upper deck, and a large hatchway, 10 feet square, through which a wind-sail was passed and kept working when necessary.

There were also two sets of artificial ventilation. One a ventilating fan with engine which forced air into the lower deck and saloon, and lower hospital ward; it was situated on the poop deck and worked well and very quietly. The other was an air extractor worked by steam, which principally

affected the troop decks. The pipes from this extractor went all around both troop decks and worked well; it was used principally as an extractor, but by stopping the steam jets and turning the cowl to the wind it could also be used for forcing air into the troop decks.

The ventilation altogether, I am of opinion, left nothing to be desired.

Light.—The ship was lit throughout with electric light, a wondrous improvement; every light in the ward had an independent switch, so that one could be turned on alone when necessary to examine any patient at night, and thus there was no necessity to disturb the sleepers with a sudden blaze of light through the ward.

Library.—There was a good library on board to which the men had free access, and a liberal supply of papers came out by every mail, and before the weekly mail left for home, each patient that wished for it was supplied with materials for writing home.

Quarters for Medical Staff Corps.—There was a portion of No. 1 Troop deck told off for the permanent staff on board, so that they occupied the same quarters all through.

Drying Room.—There was a drying room on the mid-ship part of the upper deck, it was small and did not work well; practically most things were dried and aired in the sun on deck.

Commode Room.—There was a commode room on the starboard-side under the poop-deck; it was suitable for the purpose and is very necessary for a hospital ship.

Dispensary.—The dispensary was on the main hospital deck, under the poop, it was very well fitted up and supplied with a sink and all necessary fittings, it was very well done and the supply of medicines most liberal and complete; the fittings were so perfect that little damage was done by the rolling of the ship off the coast and coming home.

Operating Room.—The operating room adjoined the surgery and was very complete, the table was well placed and could be moved in any direction so as to utilise daylight or electric light. A steriliser was provided which would have been very useful but happily was not required; the jars for solutions were well fixed and in convenient positions; there were two movable electric lights one on either side, for operating purposes, and four lights over the operating table in addition.

The supply of instruments was abundant and varied, nothing being forgotten; in fact this room and the surgery reflected the greatest credit on the care and fore-thought of those responsible for its equipment.

Ice Machine.—There was an ice machine on board—Hall's patent compressed air machine. It could turn out 10 cwt. of ice in 24 hours, consequently the supply was abundant and never failed, and we were enabled to send large quantities on shore for the use of the hospitals up country, when the ice machine at Cape Coast failed, and also sent eight hundredweight in the "Blonde" for the use of H.R.H. Prince Henry of Battenberg.

There were also refrigerating meat chambers in which all the fresh supplies from home were kept. 40 tons of ice were in this chamber when we started from London, and large quantities of fresh milk and other perishable supplies.

Surf Boats.—There was, as a rule, a very troublesome surf, and it was sometimes most difficult and dangerous work getting the sick on board, but we had no accidents. Special hammocks were kept at the Base Hospital, and the sick were put in them there. The surf boats were specially fitted to receive these hammocks, and when the boats arrived at the ship's side they were slung on board by hand labour, the slings being so arranged that the head or foot of the cot could not be unduly depressed however the weight in the cot might be placed; while hoisting the cot on board a sailor always stood half way down the ship's side and guided the rope so that the cot could not strike the ship's side as she swung. In practice we found the surf better in the mornings than the evenings.

Voyage Out.—The troops embarked December 7th, at Albert Dock about 2 p.m. About 4 p.m. we moved out of dock and remained there for the night, and started again at daylight December 8th; the weather was very fair, and we reached Las Palmas on the evening of the 13th; went on shore and visited the various hotels there in case we might want to use them afterwards, and found that plenty of good accommodation could be obtained at the Catalina and Metropole. Left Las Palmas about 7 p.m. 14th, and reached

Sierra Leone on the 19th, and coaled there. Left Sierra Leone on the 20th and arrived at Cape Coast December 25th.

The weather during the voyage was good on the whole, and we had only 13 admissions to hospital, all trivial cases, which did well.

The principal point attended to on the voyage out was to land the men as fit as possible, and a good many parades were held to keep the men in training, Swedish drill and running around the decks being carried on daily; and as they were rather crowded on the troop deck—due to the fact of no men being put on watch—as the weather got warmer I allowed men to sleep, first, soon after leaving home, in the spare space on the main deck, below the saloon; then, as it got hotter, as we reached Las Palmas and Sierra Leone, in the hospital wards, until by the time we reached Cape Coast there were comparatively few men on the troop decks, and consequently they suffered very little from heat, had little or no sickness going out, and were landed very fit at Cape Coast, only three men not being fit to march.

Cape Coast.—The troops landed on December 28th, and then the "Coromandel" became a hospital ship, and between this date and February 8th, the date we left the coast, we received 189 transfers in all, not including officers; of these we had in hospital, when we left the coast, 110; 16 were invalided home, two died, and the rest were discharged.

Voyage Home.—Having got all the sick on board, we left Cape Coast on February 8th, and had very fine weather, and reached Las Palmas February 16th.

Finding at Las Palmas that we had still a large number of serious cases of fever, and that the cold was even then already affecting them and causing relapses, I consulted with Surgeon-Colonel Taylor (who was on board with the headquarter staff, and who had already frequently given me the benefit of his valuable advice on serious cases), and it was decided to telegraph home a recommendation that we should stop at Gibraltar and land our more serious cases there. This course was agreed to from home, and when we arrived at Gibraltar on February 21st we landed 31 men and two officers.

We left Gibraltar February 21st, and had very rough weather; it became very cold with a sharp east wind, and we had a good many relapses and fresh attacks of remittent fever amongst the officers and men, and it became very evident that a wise step had been taken in leaving the men at Gibraltar.

We arrived at Albert Dock February 24th, and landed the same day, but were not able to finally clear the ship of all the stores, &c. until February 29th.

During the voyage home we had 40 admissions, viz.: —26 remittent fever, 12 ague, 1 dysentery, 1 wound.

The greatest attention was paid to keeping the men warm, and as little exposed as possible; as the weather got colder a portion of the hospital ward was screened off, and the tables from the deck put there so that the convalescents could dine below, and they were also permitted to smoke there. The warm hospital clothing was brought into use, and all the troops wore their great coats.

A number of men who were discharged from hospital, but were still a little weak, were put on a convalescent list and allowed ale daily.

Total Admissions.—In all we had 245 men passed through the hospital; of which 56 were admissions and 189 transfers; of these 4 died, 16 were invalided from Cape Coast, 31 were landed at Gibraltar, 10 transferred to Albert Dock, and the rest sent to duty.

Deaths.—There were in all four deaths—two from dysentery and two from remittent fever; one died at Cape Coast, one as we were leaving it, one while off Cape Verde, and one just before we reached Las Palmas. The first fatal case, dysentery, was a sergeant of the 2nd Battalion, West India Regiment, who had been over a year on the coast, and the disease was more or less chronic, the result of long residence. The second case, also dysentery, was an acute case complicated with malaria, and the man died of exhaustion. The third death was from remittent fever; he had a very high temperature, and towards the end suffered from diarrhœa of a dysenteric character, and died of exhaustion; the last death being from remittent fever, a protracted case, with no very marked high temperature, and the immediate cause of death was head symptoms, the result of uræmic poisoning.

I made no post-mortem examinations, and I am strongly of opinion that, except in cases urgently requiring one, it is not advisable to hold post-mortems

on board ship. In such a small community everything gets talked about and such talk must have a depressing effect upon the sick in hospital.

Diseases.—The principal diseases, taking admissions and transfers together, were—remittent fever 157, ague 31, and dysentery 15.

The principal points I noticed about the remittent fever were the unusually high temperature, frequently over 106°, and the frequent occurrence of diarrhœa and often dysenteric symptoms. Quinine in large doses was nearly always efficacious, antipyrin and phenacetin were useful, with wet packing in keeping down the temperature, and Warburg's tincture on two occasions acted very rapidly.

The ague cases occurred nearly altogether in men of the West Yorkshire Regiment, and could generally be traced to India, and always yielded to quinine.

The dysenteric cases were, as a rule, very severe, evidently much complicated with malaria; hippo was not as successful as usual; tincture of iron, in large doses, was found useful, and quinine was always necessary.

In all the cases great prostration was noticed, and the free use of nourishing diet and the early administration of stimulants was found necessary. Brandies, essences, especially chicken, which was well borne in cases where there was troublesome vomiting, and bovril were much used and found of great value.

Officers.—Not counting second admissions of the same officer, there were in all 30 officers treated on board the "Coromandel"; of these none died; two were invalided home from Cape Coast, two were landed sick at Las Palmas, two landed sick at Gibraltar, 10 got sick leave, and the remainder returned to duty.

There was one very bad case of dysentery discharged to sick leave, and the remaining cases were nearly all remittent fever and ague.

Some of the cases of remittent fever were very serious, with very high temperatures, in one case nearly reaching 107, but up to the time I left them all did well.

Two civilians, Government officials, were also treated on board the "Coromandel" while off the Cape Coast, and 10 invalids were brought home from Gibraltar.

Total Number treated.—The total number treated on board the "Coromandel" is thus brought up to 287, 32 officers and 255 commissioned officers and men, and when I say that there were only four deaths I think I have said enough to show the great value of the "Coromandel" as a hospital ship.

General Conclusions.—From my experience of the past voyage there are a few points which I think may be of use with reference to future hospital ships.

Wind-sails.—The hot weather wind-sails require constant care and attention, the keeping them properly rigged makes an important difference in the health and comfort of the sick.

Fire Stations.—This point ought to be settled at once, and what is to be done with the sick; in our case arrangements were made on the basis of transferring the sick at once to the guard ship.

Disinfecting Chamber.—A disinfecting chamber ought to be on board all hospital ships; it could be easily put up and might be of great use.

Condensed Water.—A quick method of ascertaining the amount of salt in water would occasionally save a great deal of trouble.

Copper Vessels.—Great care and attention should be paid to the cleanliness and tinning of all copper vessels used.

Washing.—Washing on board ship is a troublesome point. Natives will be always found to work better than Europeans, and a good drying room is most important.

Meals on Deck.—Arrangements should be made to allow as many patients as can be allowed up with safety, to have their meals on deck while the weather permits.

Bedding.—No bedding, or in fact anything else, to be kept in the wards, except what is in absolute use.

Cupboards.—Cupboards with locks to them should be put up in each ward where nursing sisters could lock up anything they may require, medicines, stimulants, &c.; and also racks which would hold spitting cups, urinals, bed-pans, and things easily broken by the rolling of the ship.

Officers' Wards.—Officers' wards should be always provided, or at least a proportion of them; cabins do not suit well, the bunks are very awkward and the baths and w.c.'s at too great a distance as a rule.

Refrigerator.—There should be a small refrigerator or ice box in each ward.

Punkahs.—Could not arrangements be made to work the punkahs by steam?

Bilge Water.—The pumping out of the bilge water requires constant care and attention to it, the state of the water as pumped out shows whether proper care is taken or not.

Ship's Crew.—The medical officer in charge should frequently carefully inspect the quarters occupied by the stewards and ship's crew.

Water Ballast.—A hospital ship should always have arrangements for carrying water ballast.

Iron Cots.—The canvas sides to our cots were rather low, they would be of more use about 2 inches higher.

Hospital Ships not Transports.—A hospital ship should never be used as a transport; going out let her carry field hospitals, bearer companies, &c. but no regular troops. Coming home she should be a hospital ship only. The moment you try to unite the two you spoil both

Coal Shoots.—The shoots for coaling passed through all the wards and were not fixtures. It is very objectionable to have the shoots passing through the wards at all as the noise, when coaling, is terrible, but if this cannot be avoided the shoots ought to be permanently fixed, as otherwise the coal dust gets through and is most objectionable.

Wards away from Engines.—The wards should be as far away as possible from the engines, they are thus much cooler and quieter.

Staff of "Coromandel."—The permanent staff of the "Coromandel" consisted of—

Brigade Surgeon-Lieut.-Colonel Townsend in medical charge.

Surgeons-Major J. R. Dodd and J. Hickman.

The Rev. W. Le Grave and the Rev. W. C. Haines.

Lieutenant and Quartermaster Lines.

Nursing Sisters Gray, McCurdy, and Potts.

One warrant officer, 4 non-commissioned officers, and 15 privates, Medical Staff Corps, while on the coast. In addition to the above, 2 non-commissioned officers and 5 privates were sent on board at Cape Coast for duty on the voyage home.

I take this opportunity of thanking all the staff for the efficient way they performed their duties and for their great care of and attention to the sick.

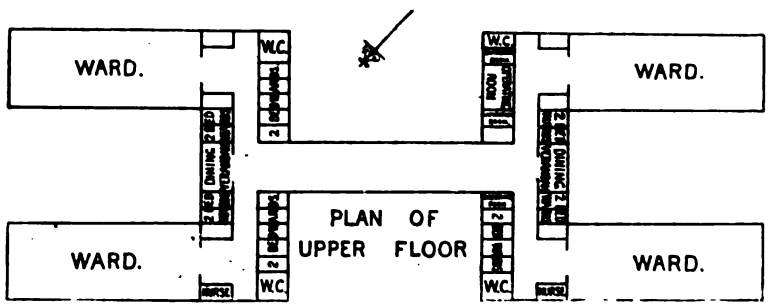
APPENDIX No. IV.

NOTES ON THE SURGICAL PRACTICE OF THE GREEK HOSPITAL AT ALEXANDRIA, EGYPT.

By Surgeon-Captain F. J. MORGAN, Army Medical Staff.

By the kind permission of Dr. Zancarol, the Director and Senior Surgeon of the Hospital, I submit these notes of his practice, and I desire to take this opportunity of expressing my indebtedness to him for his courtesy in placing the practice of the hospital at my disposal.

General Description of the Hospital.—A brief description of the hospital may be of interest. It is situated about 400 yards from the sea-shore, and is exposed to the cool north-west wind, which blows steadily for the greater part of the year. The hospital is a two-storied building, arranged as roughly shown in the plan below:—



The upper floor consists of two general wards for men and two for women, a number of small two-beds wards for special cases on either side, a surgical dressing-room, two operation-rooms, and nurses' quarters. The lower floor comprises another general ward for men, more two-bed wards for men, the out-patient department and bacteriological laboratories in the right wing, and the administrative offices, stores, and an excellent kitchen, in the left wing. At the back of the large garden in which the hospital stands are the infectious wards, the mortuary, and post-mortem room. The wards, rooms, and corridors are spacious, high, and cool; the corridor floors are paved with closely-fitting slabs of polished marble, and the floors, walls, and ceilings of the wards and rooms are coated with a fine cement having a polished surface. The corners of the wards and corridors are broadly rounded, and ledges, on which dust could collect, have been avoided. The impression of coolness and scrupulous cleanliness throughout the hospital is striking. The bacteriological laboratories are fitted with the latest appliances for research, and there are pens in the garden for the supply of animals for experimental purposes.

The Operating-rooms.—The larger of the two operating-rooms is used for general operations, the smaller for laparotomies only. Both are lighted from the ceiling as well as from the side. Plate glass shelves, on metal brackets, around the rooms, provide support for bottles and light articles, and a single-cylinder Pasteur filter supplies sterile water. The operating-table in the larger room is of enamelled iron with a thick glass top, that in the laparotomy room is of enamelled iron and has a central hinged flap capable of being lowered to facilitate the application of a bandage to the abdomen. Any small tables and stools required are of wood, enamelled white. The older surgical instruments, for general operations, are kept in a glass-fronted cupboard and in drawers below it; those of recent date, free from wooden handles, made of a single piece of metal as far as possible, capable of being taken to pieces for cleaning (when of more than one piece) and nickel-plated,

are stored in the laparotomy room in a cabinet of plate-glass framed in metal. (Fig. 1.) Wide-mouthed bottles, holding several gallons, contain the

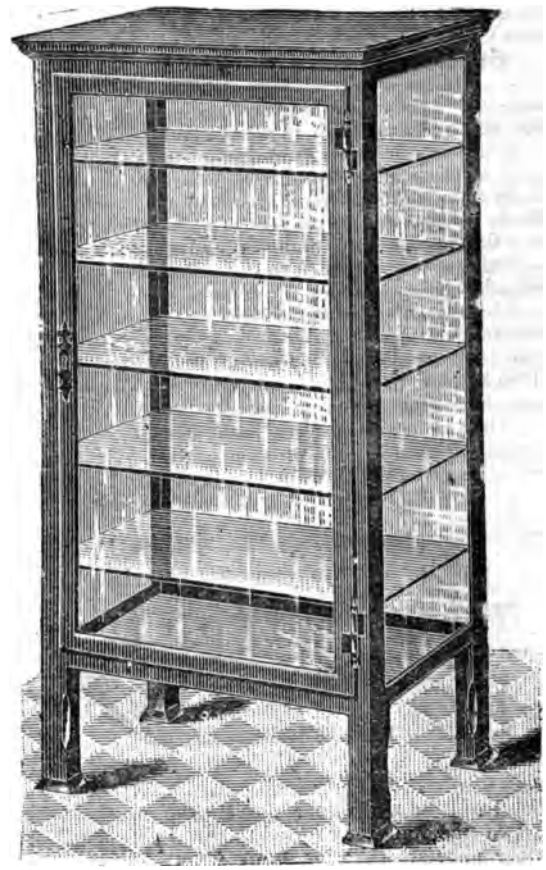


Fig. 1.

antiseptic solutions which, for use, are poured into large glass funnels each fitted with rubber delivery tube, clip, and glass nozzle, and supported on a metal upright. Besides antiseptic solutions, there is a supply of long-necked glass flasks, containing a litre, to hold water from the Pasteur filter, which, as an additional precaution, has been boiled in the flask, this then being closed with a plug of cotton. Steam sterilisers, for the sterilisation of dressings, gowns, handkerchiefs, towels, and instruments, and boiling pots heated by gas burners, complete the equipment.

The method employed at operations and subsequent dressings is the "aseptic," as attained by steam sterilisation of everything that can be so treated, that will come in contact with the part to be operated on, and the most scrupulous personal cleanliness of the operator and his assistants. Weak antiseptics are also used, when considered necessary, as an additional precaution.

Dressing Materials and Solutions.—The dressing materials and solutions in use are few and simple :—

Soft white cotton gauze, free from "dressing" -	Steam sterilised before use.
Gauze bandages of similar material - -	
Plain white absorbent cotton wool - -	
Waterproof material - - - - -	
Iodoform gauze.	
'1 *per cent.* solution of corrosive sublimate -	In water from the Pasteur filter.
'1 *per cent.* solution of salicylic acid - -	

The iodoform gauze is prepared at the Greek Hospital as follows:—

Resin	200	grammes.
Glycerine	50	,,
Rectified spirit	2,000	,,

Dissolve the resin in the spirit, add the glycerine, and strain through muslin. To each 1,000 grammes of solution add 100 grammes of iodoform, in impalpable powder. Immerse pieces of sterilised white gauze in the mixture and wring them out lightly (the hands having been cleansed as for an operation). Dry the gauze on lines in a clean and darkened room, and pack it, in moderate-sized pieces, in paper or in a yellow glass bottle.

Iodoform gauze so prepared is found to be more reliable and much cheaper than that obtained from manufacturers; the iodoform does not dust out, and the strength of the preparation (10 per cent.) can be relied upon.

I have found the process easy and very satisfactory, and it is a most economical and efficient way in which to use iodoform for the treatment of suppurating wounds, abscess cavities, or venereal ulcers. In the absence of sterilised gauze, I have used deteriorated "carbolised gauze" for its preparation, washing, boiling, and drying it.

"Sponges" and compresses, of a variety of shapes and sizes, are made of cotton, covered with gauze, or a number of layers of gauze sewn together, and these, after being boiled for some time, are kept in the salicylic acid solution until required. They are never used for more than one operation. Silk and prepared gut are mostly used for ligatures and sutures; they are sterilised and kept on reels, or wound on glass slips, in a glass box containing the sublimate solution (Fig. 2). A specially prepared gut, known as "Fil de Florence," is

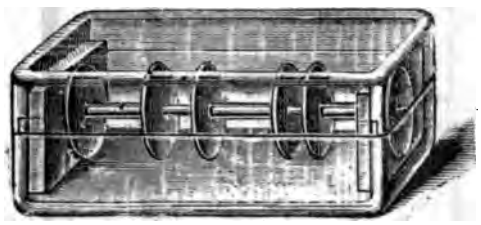


Fig. 2.

also used for the suture of skin and mucous membrane; it gives excellent results. It is of the appearance and character of thick white horsehair.

Sterilisation of Materials and Instruments.—Before an operation, or daily when operations are constantly occurring, a supply of cotton wool, white gauze, and bandages is packed into one of the drums (Fig. 3) of the steriliser,

Fig. 3.—Drum of Steriliser for Materials.

and a sufficiency of gowns, aprons, towels, handkerchiefs and squares of waterproof material in another. The drums, with the holes open, are placed in the steriliser (Fig. 4), and any space yet to spare is utilised for the sterilisation of dressing-trays, trays for instruments, and such-like bulky articles.

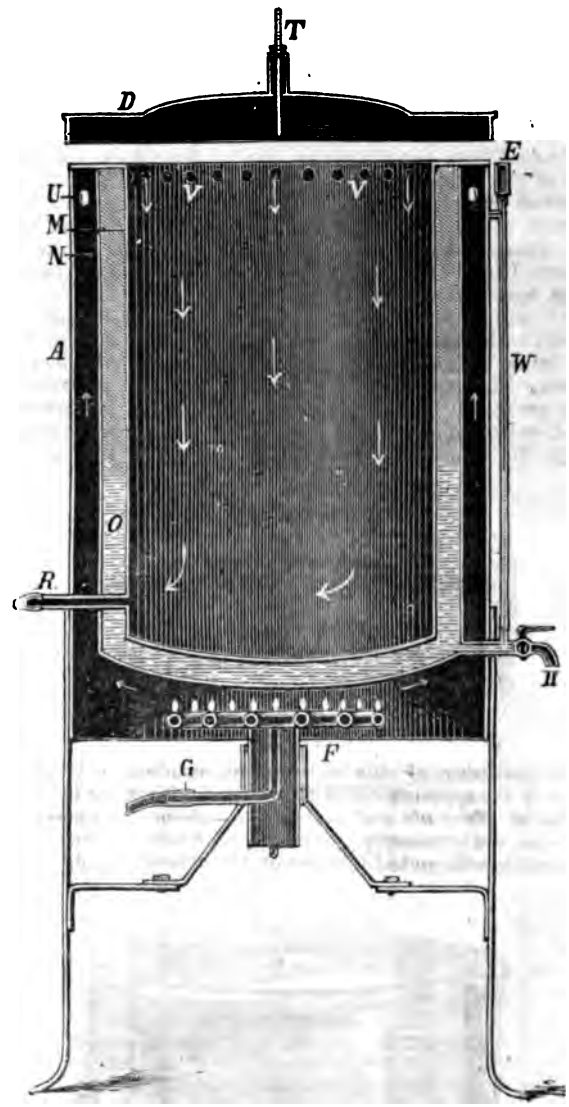


Fig. 4.—Steriliser for Materials.

The water space of the steriliser having been half filled with water, the lid is screwed down, the gas lighted, and the temperature raised to 100° (Cent.), at which it is maintained for half an hour. The steam enters the chamber by the holes at the top of the inner jacket, permeates the materials in the drums, and escapes by the tube R., by which it is conducted to the bottom of a vessel of water, for condensation. By reason of the heat in the chamber, surrounded as it is by the water jacket, the materials come out practically dry. On removing the drums for use, the holes are closed by sliding the metal bands *until they* are covered.

The instruments required having been most carefully washed and scrubbed *after the last* operation, are placed in the wire-work tray (Fig. 5) and cover-

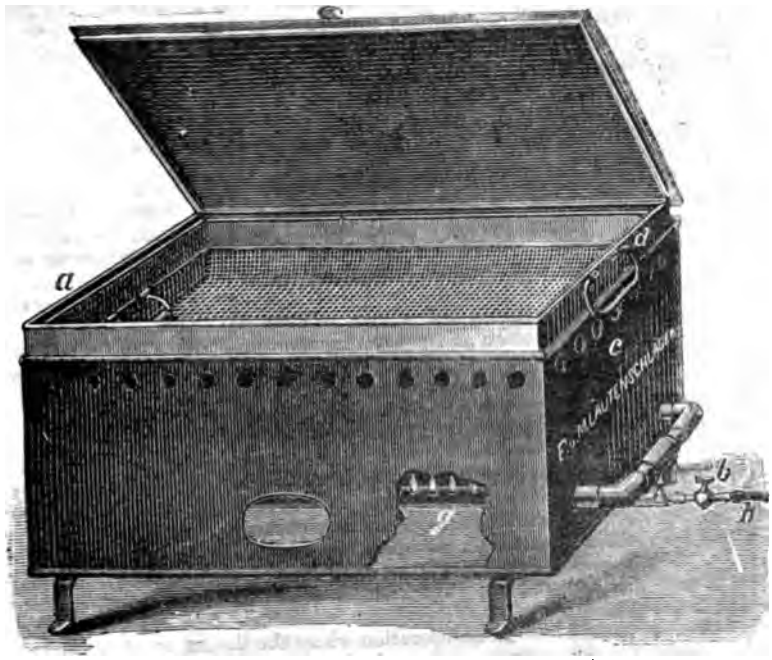


Fig. 5.—Steriliser for Instruments.

Fig. 6.—Tray for Sterilised Instruments.

with a 1 per cent. solution of carbonate of soda. The lid is closed, the gas or spirit lamp lighted, and the boiling continued for five minutes. Knives are supported in racks, and are only boiled for one minute, as longer boiling dulls a cutting edge. The soda solution prevents rusting and helps to remove any grease left on the instruments. They are conveyed, in the wire-work tray, by the "sister" who has charge of the sterilising apparatus, to the large shallow tray (Fig. 6) containing salicylic acid solution, from which they are supplied to the surgeon during the operation.

The Preparation of the Operator, his Assistants, and the Patient.—The operator, his assistants, the anæsthetist, and the nurses, cleanse their hands and arms as follows:—The finger-nails being kept very short, the hands and arms, to the elbows, are scrubbed with a nail-brush, soft soap, and sterile water until the skin is red, and are soaked successively in clean water, alcohol, and the sublimate solution, being finally dried on a sterilised towel. The nail-brush is frequently sterilised, and is kept in a jar of sublimate solution. All then put on sterilised cotton gowns covering the whole person, and the operator and his assistants also wear aprons of waterproof material. The arms are bare from the elbow. In the pocket of each gown a sterilised handkerchief is carried. Neither the part to be operated upon, instruments, nor dressings, are touched by anyone who has not so prepared himself. The patient, if possible, has had one or two general baths beforehand, and the part to be operated upon having been shaved, the skin for some distance around is prepared as noted for the cleansing of the hands, a compress soaked in the sublimate solution being left on the part for some hours. The same cleansing process is again gone through when the patient is on the operating table, and the anæsthetic is then given. The skin and adjacent clothing are covered with squares of sterilised waterproof material, leaving only a small area, where the incision is to be made, uncovered.

Method of procedure.—In an operation where the tissues to be incised may be considered aseptic, sterile water only is used for irrigating the part, and rinsing hands and instruments. "Sponges" and compresses in use are rinsed out in the salicylic solution. All hæmorrhage having been arrested, as the operation proceeds, by pressure forceps, and the larger vessels ligatured, the wound is sutured, usually without drainage, and the skin cleaned up. In closing wounds, more particularly those in the abdominal wall, the principal anatomical layers are separately united by continuous suture. Finely powdered iodoform is dusted over the line of incision, a few layers of white gauze are applied, over this a mass of cotton wool sufficient to cover the part well in, and the dressing is completed by a gauze bandage. The gauze, cotton, and bandages

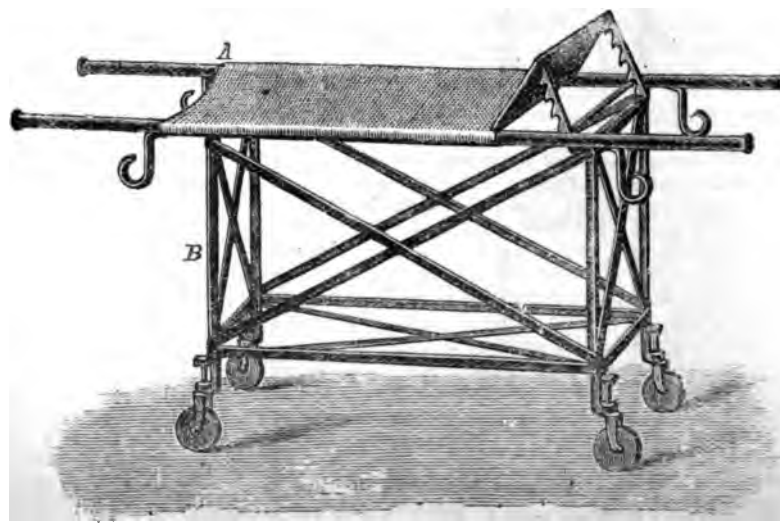


Fig. 7.—Couch for removal of Patient after Operation.

are taken directly from the drum of the steriliser by means of forceps, to the patient. Should pus be met with, the sublimate solution is used for irrigation in localities other than the serous cavities, where the salicylic solution is used; a packing or drain of iodoform gauze is used, and a good layer of this is placed between the wound and the mass of cotton wool of the dressing. The patient is removed from the operating table to the ward on a light iron couch (Fig. 7), running on rubber-tyred wheels and having a hammock-top stretcher of stout linen, the linen being removable for washing. At subsequent dressings the same procedure is followed. Patients able to walk, or who can be taken in a wheeled chair, go to the dressing-room to have their dressings changed. After each operation the glass top of the operating table is washed and dried with a sterilised towel, and all prepare their hands afresh.

All morbid products met with during an operation are collected in sterilised glass vessels for subsequent bacteriological and microscopical examination.

A short description of some of the operations more frequently seen at the Greek Hospital may be of interest, and they will here and there illustrate the foregoing description of the procedure.

Abdominal section.—Laparotomies for intra-pelvic diseases of women are of frequent occurrence and are most successful, primary union of the wound and uninterrupted recovery being almost the invariable rule. Pyo-salpynx was the condition for which the operation was most frequently undertaken. The incision through the abdominal wall having been completed as quickly as possible, and hæmorrhage arrested by pressure forceps, Dr. Zancarol explores the pelvis and abdomen near by with the finger or hand just rinsed in sterile water to free it from blood. Enlarging the incision, if necessary, he separates adherent parts, controls any hæmorrhage by forceps, isolates the part to be removed down to its pedicle or base of attachment and there applies forceps of such strength and form as will control the circulation of the part. Meanwhile an assistant keeps the field of operation well in view by the use of broad-bladed retractors. The tissues on the near side of the forceps are transfixed by a blunt needle carrying stout silk, in one or more places, and the pedicle is tied in as many sections. The part beyond the forceps is cut off and the surface of the stump is seared with the Paquelin cautery as the forceps are being removed. Any gaps in the peritoneum left by the removal of an organ, a tumour, or the separation of adhesions, are closed by continuous gut suture. The peritoneal cavity is flushed with water as hot as can be borne by the hand, from the flasks before mentioned, and any hæmorrhage that still continues is arrested by ligature or light touches of the Paquelin cautery. The pelvis and abdominal cavity are then dried by the introduction and withdrawal of strips of gauze, "sponges" and instruments are counted, and the incision in the abdominal wall is closed, layer by layer, with continuous sutures of gut or silk, and "Fil de Florence" for the skin. The dressing is as before described with the exception of the last item, a broad binder of soft white flannel being used instead of a bandage. The binder is sterilised, and is applied as firmly as possible. Should soiling of the peritoneum by the escape of pus have occurred during the operation, hot salicylic solution is used for flushing instead of water, and a drain of several strands of iodoform gauze in another layer of gauze (Mikulicz bag) is used, extending from the pelvis to the lower angle of the wound. More iodoform gauze is put over the incision, and a mass of cotton wool and the binder complete the dressing. The position on the inclined plane is usually adopted, and it greatly facilitates the performance of these difficult operations. The upper part of the abdomen and the intestines are shut off as much as possible from the seat of operation by large compresses which, if well managed, effectually prevent the passage of blood or pus to these parts.

Operation for Abscess of the Liver.—Dr. Zancarol's operation for abscess of the liver is worthy of consideration by those employing other methods. His experience of the disease is almost unique, as it is of frequent occurrence amongst the population of Alexandria (Arabs, Syrians, Greeks and other Europeans), and many cases are sent to him for operation from all parts of Egypt. He had in 1893 adopted the method to be described for nine years out of a total of 27 years during which he had been treating the disease, and during that time 562 cases had passed through his hands. His statistics are

gut suture. The skin incision is closed with interrupted sutures of "Fil de Florence."

Operation for Hæmatocele.—Hæmatocele is treated on the same principle, the blood and clot being turned out, the organised fibrin is patiently peeled off the sac or removed by gentle rubbing with a small piece of sterilised loofah, pieces of the sac are excised, and the sac and skin closed. A small drainage tube is used in these cases, as there is always some oozing from the peeled surface of the sac.

Operation for Endometritis.—All cases of endometritis are treated by curetting the uterus. The complete recovery, in a week or ten days' time, from this frequent, painful, and debilitating disease, as compared with the treatment, often ineffectual in the end, of a few years ago, is very striking. The parts having been rendered as aseptic as possible, the uterus, held by forceps, is dilated by means of Hegar's dilators to such a size as will allow the currette to pass easily. This is applied to the mucous membrane until firm tissue is reached, as evidenced by the grating feel and sound. The uterus is washed out with sterile hot water, and is injected with "iodised phenol," care being taken to absorb with cotton any that escapes from the os uteri. The vagina is washed out and is lightly packed with sterilized gauze. The gauze is removed in a day or two, and after a short period of rest in bed the patient is quite well.

Anæsthesia.—Chloroform is the only anæsthetic used at the Greek Hospital, and it is admirably administered by the apparatus of Messrs. Paul Bert and Dubois (Fig. 9). This machine, when I left Alexandria last autumn, had

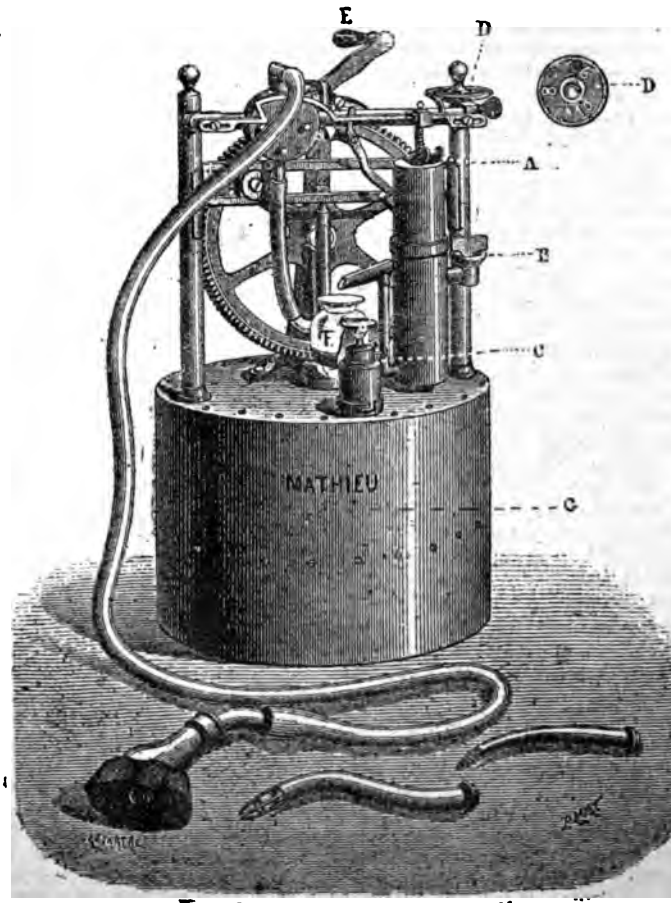


Fig. 9.

been in use for two or three years, and had been used over 600 times. During this period no death from chloroform occurred, nor was there an instance of anxiety felt for the condition of a patient as the result of chloroform administration alone. This is all the more noticeable, as a large proportion of the cases were such as required prolonged operations, and the patients were often aged and much debilitated by previous long illness. Messrs. Duncan and Flockhart's chloroform is used. To use the apparatus, the reservoir A is filled with chloroform at the opening B. The spirit lamp C is lighted, and the regulator D adjusted to give a mixture containing 10 per cent. of chloroform. An assistant slowly turns the handle E, and chloroform drops from the small spout into the glass bottle F. In the bottle the chloroform is vaporised, and the vapour and air are drawn into the cylinder G to be delivered through the tube and face-piece to the patient. The tubes shown at the foot of the illustration are for passing the vapour to the back of the mouth or nose in operations about those parts. As the patient gets well under the anæsthetic the proportion of chloroform is reduced to 8 or 6 per cent. The vapour is taken without any discomfort or alarm on account of the large proportion of air to chloroform, and the patient passes into a condition of easy and deep anæsthesia in from 7 to 10 minutes. Anæsthesia can be maintained for three hours or more without a bad symptom by means of this apparatus. The patient returns to consciousness much more quickly than after the usual methods of administration, and such after effects as sickness, giddiness, or headache are infrequent. Only after prolonged administration in cases of long standing disease, or after much loss of blood, is heart weakness met with, and in these cases hypodermic injections of sodio-salicylate of caffeine are given.

Nursing arrangements.—There is a staff of 6 or 8 thoroughly trained English nurses, obtained from the London Hospitals. They have entire charge of the serious operation cases by day and night, and are assisted by European and native subordinates.

Conclusion.—Until quite lately there has been little mention in the English medical journals of the details of the system of the "aseptic" method of operating, although it is the system almost universally employed on the continent. Having had the opportunity of seeing it carried out very thoroughly for some years at the Greek Hospital, I have been much impressed by its simplicity and certainty. I am, of course, aware that success does not so much depend upon the use of any one particular system as on the intelligent and thorough carrying out of one or the other, and that perhaps equally good results are obtained by operators using the "antiseptic system." I am of opinion, however, that the "aseptic" is the better, founded as it is upon the principle of absolute cleanliness of the operator, his assistants, and everything that he will use, as compared with the trusti n chemical antiseptics, often so strong as to be irritating and poisonous. In cases already septic, or likely to become so, antisepsis must always have a large field; but where we can reasonably hope for success, I think asepsis should be the high mark at which we should aim, although for some time yet it may be prudent to judiciously combine some features of both systems as done at the Greek Hospital. In the matter of economy, the "aseptic" method has advantages, as no dressing materials could be cheaper than the white gauze and cotton almost exclusively employed, as compared with the expensive wools and gauzes impregnated with costly chemicals. The original cost of the sterilisers for instruments and materials would soon be covered by the economy in cost of dressing materials.

In the absence of the more perfect apparatus already described, much may be done with very simple and inexpensive utensils. An oblong covered kettle, provided with a wire basket or perforated tray, will serve for the sterilisation of instruments, and the small amount of fluid required to be used in it can be easily brought to the boiling point by means of a couple of large spirit lamps, or by placing the kettle over a clear fire. A few pots for the boiling of gauze and cotton, which can be wrung out nearly dry in a towel which has been also boiled, will complete the equipment. By such simple means, sterile instruments and dressing material could always be obtained on active service, and at places where antiseptic materials would not be obtainable.

In the "aseptic" system the dressing material passes direct from the source of sterilisation to the patient; in the "antiseptic," the materials may have to

be stored for long periods, and so lose their value when containing volatile chemicals, and, should they be used from packages already opened, may be soiled by dust and the dirty hands of storekeepers, when, as so often happens, they are kept carelessly and handled by anyone other than the surgeon. In fact, one cannot help sometimes seeing that the idea is, that once having been "antiseptic" materials, they will always remain so in spite of any amount of careless treatment.

The scrupulous cleanliness in person, materials, and method must always be very advantageous in its bearing on the system of hospital attendance on patients generally.

Although this process of dressing, as fully carried out, is somewhat lengthy to describe, and may be considered, at first sight, unduly complicated, yet in practice, with a few intelligent assistants, it is really simple and takes little time; the excellent results obtained amply repaying any additional trouble taken.

In concluding, I thank Dr. Zancarol for his example of skill, thoroughness, and patience in operating, and for many pleasant and instructive hours spent at the Greek Hospital in his company and in that of his colleagues.

APPENDIX No. V.

REPORT ON MYCETOMA CARTERI, OR FUNGOUS DISEASE OF INDIA.

By Surgeon-Captain S. Powell, M.B., Army Medical Staff.

Although vast strides have been made, during the last two decades, in the investigation of the natural history and pathological effects of low vegetable organisms in the tissues and juices of animals, we have still much to learn; indeed, it can scarcely be said that our knowledge of the origin and life history of any of the vegetable parasites which are liable to invade the human body is by any means complete; still, to most students of medicine, as well as to bacteriologists, the diseases and pathological conditions induced in their hosts, by the direct or indirect influence of entophytes, possess a special fascination and interest, and were every humble observer to record his experiences in a scientific manner, there can be no doubt that our knowledge would be considerably enhanced, and that many difficult problems which vex the present generation would the more readily be unravelled and explained; for whatever new discovery we may make as to the nature of one organism will sooner or later contribute to the spread of our knowledge concerning similar growths and structures. It has also been the common experience of many medical practitioners, that the interest from time to time evoked by the study and investigation of rare, or the variations in ordinary, types of disease—or even of those peculiar to certain climates, localities, or districts—are the landmarks in the somewhat monotonous routine of their daily work, which may not only endue a rather dreary path with unexpected variety, but even make its pursuit a real pleasure and recreation; so that there is thus unconsciously developed in those who follow that way a true scientific habit of observation and research, to which they may, not be naturally predisposed, and, however studious, could not possibly attain by the mere perusal of books.

Such considerations should be a sufficient apology for the selection, as the subject for a paper, of the natural history of a comparatively rare disease, almost peculiar to India, and one which is practically unknown in Europe, in fact, unfamiliar to all in this country, except to those who have served or practised in certain districts of India, and to a few pathologists engaged in laboratory research. Yet the amount of literature which exists on the subject of this disease, and which has all been written during the past 30 years, is far greater than would naturally be anticipated, and in his endeavour to ascertain all the available published information, from every source, concerning the disease, the writer found that he had undertaken no light task. It will be seen that the paper treats of a fungus, the nature, origin, and development of which, as well as the relationship of its different varieties to each other, and to homologous structures, are still involved in obscurity; and doubtless, when these points have been thoroughly cleared up, our knowledge of many other morbid processes due to the agency of pathogenic fungi will have been considerably extended.

Lastly, in addition to the writer's personal experience of the case hereafter quoted, he has seen others at Lahore, and has examined many specimens in various pathological museums in London; and for the inspection of some beautiful sections stained by Gram's method, and by the Erlich-Biondi reagent, in the Bacteriological Laboratory of King's College, he is greatly indebted to Prof. Crookshank and to Dr. Hewlett.

Mycetoma Carteri.

History and Bibliography.—Although this disease has been known and described by the old Hindu writers for several centuries, under the name of "Keerenagra," European surgeons only appear to have first recognised its special characteristics about 60 years ago.

In 1842, in his Dispensary Report, as Zillah Surgeon at Madura, Dr. Gill* thus graphically describes a disease affecting the foot, which is unmistakable. "The foot has been found to be one mass of disease of a fibro-cartilaginous "nature, with entire destruction of the joints, cartilages, and ligaments; it "has neither shape nor feature, and is covered with large fungoid excrescences, "discharging an offensive ichorous fluid."

Two years later, Garrison-Surgeon Godfrey,† gave a further and more detailed account, of what was then apparently known as "Ulcus grave," and drew attention to its similarity to tuberculous disease; he also described the most marked characteristic of the disease, as "a black deposit filling a cyst "the size of a walnut." He suggested "Morbus Tuberculosis Pedis" as a suitable name for this condition. In consequence of the above accounts of the disease, and from its prevalence in that district, it has since been known as "Madura Disease," or "Madura Foot."

It remained for Dr. Ballingall, the Professor of Surgery at the Grant Medical College, Bombay, to first propound the theory of the parasitic nature of the disease. To the Medical and Physical Society of Bombay,‡ he described a tumour affecting the foot, on the interior of which, and also in the discharge therefrom, a granular substance was found, which, on microscopical examination, was ascertained to be composed of "large cells filled with granular matter, "oval or circular in form, and generally surrounded by transparent fringes, "consisting of long irregular spiculæ;" others, "collected in tuft-like small "brushes" or "radiating groups of spiculæ without distinct cells in them," and "numerous oil globules." This seems to be a very good description of the microscopical appearances of the characteristic particles.

Cases were also recorded in 1858 by Assistant-Surgeon Rustomji Bazonji,§ and again in 1859 by Deputy-Inspector-General Eyre, Madras; also in the Punjab by Mr. Peter Minas || in his "Observations on Kerrenagra." It may thus be fairly acknowledged that the condition then known as Madura Foot was considered in India to be a definite specific disease in the year 1859; but it was not universally recognised and understood until Dr. Vandyke Carter¶ published his collected papers in the form of a most exhaustive monograph, in 1874, in which that observer believed that the disease was due to a fungus, which, in the black variety, was in a quiescent condition, and that the roe-like bodies were a degenerate stage of the black masses. In this work, his attempts to cultivate the fungus are fully described, as well as the manner in which he succeeded in cultivating a pink mould on rice, which mould was afterwards examined by Dr. Berkeley, who classified it as a new variety, to which he gave the name of "Chionyphe Carteri."**

The disease was later thoroughly investigated by Drs. T. R. Lewis and D. D. Cunningham, and described in their joint article on "The Fungus Disease "of India,"†† in which they endeavour to, and indeed completely, refute Dr. V. Carter's theory as to the relationship of the fungus of Mycetoma to the pink mould "Chionyphe Carteri." To his credit, however, Carter relinquished his pink mould theory shortly afterwards, but he still maintained that the disease was due to a fungus, in which contention he was supported by Dr. Bristowe, ‡‡ though Drs. Tilbury Fox,§§ Lewis and Cunningham, were strongly opposed to it.

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* Quoted by Dr. Colebrook, Dispensary Report, Madura, 1848; also by Dr. V. Carter.
† Departmental Report, Public Dispensary, Bellary, 1844, and Lancet, 1846.
‡ Transactions, Vol. 2, 1853.
§ Trans. Med. and Phys. Soc., Bombay, Vol. V., pp. 230-241.
|| Ind. Annal. Med. Sci., Vol. VII., 1860, p. 316.
¶ Carter, "Mycetoma"; London, 1874.
** Intellect. Observ., No. X., Nov. 1862; also Journ. Linn. Soc., Vol. VIII., 1865, p. 139.
†† Report of the Sanitary Commission of India, 1874.
‡‡ Trans. Path. Soc. Lond., 1871.
§§ Trans. Path. Soc. Lond., 1869; also *op. cit.* on Certain Epidemic Skin and other Diseases of India, 1876.

At a meeting of the Medical and Physical Society at Bombay on 8th January 1886, Dr. Vandyke Carter* drew attention to the discussions which had recently taken place in England on the newly discovered parasitic disease, "Actinomycosis," and expressed his surprise that no allusion had been made to the analogous condition which had long been known in India as Madura Foot, or Mycetoma, and at the same time he exhibited, under the microscope, some fungoid particles taken from a case of the pale variety of the disease, drawing particular attention "to the resemblance, as regards both dimensions "and form, of the granular central body with its ray-like envelope and "exudation cell surroundings"—to a woodcut in Dr. MacAlister's translation of Ziegler's "Pathology."† "There are," said Dr. Carter, "no other structures "I am aware of, in the whole range of pathological histology, which could "compare so closely as these two." He then proceeded to compare the clinical manifestations of these diseases, their primary local appearance, effects, destructive progress, and chronic course, and the fact of their both being due to an extrinsic cause; that Mycetoma had further the power of spreading along the lymphatics of the thigh and groin. Finally, he concluded, "The "above considerations favour the view of a similar nature being attributable to "the two diseases in question."

Recently, Dr. Kanthack,‡ after having examined a large number of specimens from various pathological museums, has written a paper, in which he showed, on the excellent evidence of beautifully prepared and stained sections, the very close resemblance and affinity between the structure and growth of Mycetoma and those of actinomycosis, both macroscopically and microscopically; in short, he states that they are practically identical, and while insisting upon the similarity of both forms to actinomycosis, as well as to each other, he denies that the Ochroid is a degenerate stage of the black variety, but hints, from the tendency which he observed in the former, to the formation of pigment, that he considered the Black, on this account, to be a degenerating stage of the Ochroid variety.

But before Dr. Kanthack's observations were published, Dr. R. J. Hewlett§ had also investigated the fungus; his researches, however, were chiefly confined to cutting sections and carefully staining the growth, with a view to elucidate its structure and pathogenesis, but his results appear only to confirm Kanthack's subsequent assertion, that Mycetoma is either the Ray-fungus, or one of its pleomorphic conditions.

Since that date (1893), Dr. R. Boyce‖ and Dr. N. F. Surveyor—having had some recent specimens of the disease forwarded to them from India, which they treated by new methods more applicable to vegetable structures—affirmed, that while for the most part they admit the actinomycotic nature of the Black variety, and that it is a highly organised species, they regarded the White or Ochroid form, to be of a more delicate lowly organised type. The chief purpose of their paper, however, is to prove that these two varieties of the disease are to be considered attributable to two distinct fungi.

But the greatest advance which has recently been made in the investigation of this subject, is due to the latest efforts of Drs. Boyce and Surveyor, in conjunction with Dr. Keith and Assistant-Surgeon Boccaro¶ of the Civil Hospital, Hyderabad, Sind, and reported by the last-mentioned observer at the Indian Medical Congress, 1894–95. Boccaro there stated that Boyce and Surveyor, having forwarded some glycerine-agar tubes to Hyderabad, they were severally "inoculated" by Dr. Keith and himself, with material from both the White and Black varieties, and that these "inoculations" having been returned to Boyce and Surveyor, it appears that, so far, cultivations taken from the Black variety had not succeeded, but that those from the White were perfectly successful, and closely resembled the cultivations of Actinomycosis; moreover, subcutaneous inoculation of rabbits, guinea-pigs, monkeys, and rats, with "the artificial culture products" led to a local reaction without any general infection, and to the production, at the site of the injection, of a tumour

* Trans. Med. Phys. Soc., Bombay, 1886.
† *Op. cit.* Vol. II., 1884.
‡ Journal of Pathology and Bacteriology, Vol. I., Oct. 1893.
§ R. J. Hewlett, Lancet, July 2, 1892; also Trans. Path. Soc., 1893, pp. 176.
‖ Phil. Trans. Roy. Soc., Vol. 185, B.
¶ Trans. Ind. Medl. Congress, Calcutta, 1895.

of slow growth, "which on section, was found to possess the characteristics of "the original inoculated matter." Direct inoculation with fresh material extracted from the diseased growth has (in the case of dogs and rabbits), although repeatedly attempted, been hitherto quite unsuccessful.

The above is a very crude epitome of the history, and of what, up to the present time, has been written in English, concerning this most interesting disease. Our information is extremely sparse on the liability of animals to contract Mycetoma; Dr. Keith* alone reports one case, that of a camel near Hyderabad, one of the feet of which was thus affected, but as the animal was still alive when the report was made, the case requires further confirmation. Actinomycosis Bovis is said to be rare in India, but it is probable that Europeans have but few opportunities of examining the more uncommon forms of chronic disease affecting cattle in rural districts, and could only some plan of collective investigation be organised, it would doubtless be shown that this disease does occur, and not unfrequently.

About two years ago, with a view of still further advancing this difficult question, the writer communicated with the Principal Veterinary Surgeon in India, in order to obtain some statistics as to the relative prevalence of Actinomycosis Bovis in various districts in India, and thus to ascertain whether this disease was of more frequent occurrence in the localities where Mycetoma was well known; but, unfortunately, no information on this point could be obtained, and therefore no statistics were available. Thus the relative prevalence and affinity of Mycetoma, as compared to those of Actinomycosis Bovis and Hominis in India, are subjects urgently needing further investigation.

Synonyms.—Mycetoma (from Gr. μύκης, fungus) was the name given to this disease by Dr. Vandyke Carter about 20 years ago, but it had previously been known and described under the following terms, many of which are locally still in use, thus—

English terms.—Madura Foot: The Fungous Disease of India: Fungous Foot: Godfrey and Eyre's Tubercular Disease: Hypertrophy with caries.

Indian names.—Keerenagra: Kirudeo: Ghootloo Mahdeo: Anaycal: Pérical.

Scientific names.—Morbus Tuberculosis Pedis: Ulcus Grave: Caries: Morbus Pedis Entophyticus: Podelkoma. Lastly, Oospora Indica has been suggested by Dr. Kanthack.

Locality.—Until Bassini† described a case of the Black variety, which occurred in the north of Italy, in the person of a man who wounded his foot in an ox stall, Mycetoma was believed to be peculiar to the Indian Peninsula. But it is evidently much more universal. Dr. White‡ refers to a case which occurred in the United States, which is believed to have been one of Mycetoma. Cases are also reported from Mexico‡ and one from the Native Hospital, Cairo,§ from which it may be inferred that the fungus is widely spread, but that the particular habits and constitutions of men of the Hindu race render them peculiarly prone to inoculation. In India the disease appears to be almost endemic in certain districts, but by no means exclusively so, for its prevalence is widely spread, from Madura in the extreme south, to Basta at the head of the Persian Gulf; but perhaps it occurs most frequently in the Karnatic, and along the Malabar Coast, to as far north as the mouth of the Indus. It seems to be somewhat more rare in the Punjab, but cases have been reported from Jhelum, Hissar, Bahawalpur, Bikaneer, and Rajputana. The disease is extremely rare as far north as Rawal Pindi and Peshawur, and the cases which have been seen in those districts were probably imported from Sind or the North-west Provinces. Several cases, however, have been reported by Dr. Aitchison at Jhelum, so it is not unlikely that those who were thus affected had come as coolies or pilgrims from other districts.

Situation and Ætiology.—As one of its synonyms implies, Mycetoma chiefly affects the foot, occasionally it attacks the hand, but not perhaps in greater proportion than one, or perhaps two, per cent. of all cases, is it found in the latter situation, the right foot being more frequently affected than the left,

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* Boyce and Surveyor, *Op. cit.*
† Bassini in Bacteriol. Contribt., 1888.
‡ Dr. J. C. White in Ashhurst's System of Surgery, Vol. II.; also American Practitioner, Kemper., Vol. XIV., Sept. 1876.
§ Lancet, Sept. 1893.

likewise the right hand; very rarely have both feet, or a hand and foot, been simultaneously affected. It has been authoritatively stated that the disease only attacks the extremities, but this is not strictly true, for Boccaro* refers to a case he had seen of the Black variety, in which the right inter-scapular region was affected, to another over the right sacro-iliac articulation, to another in the left leg, and to one in the right knee.

Our knowledge of the cause of the disease is rather vague, but perhaps not more so than of that of Actinomycosis; it is usually attributable to a scratch or puncture by a thorn; indeed, one observer† goes so far as to state that it is almost invariably caused by a thorn of the babul (*Acacia Arabica*), and that he has frequently found one of these embedded in the tumour. The plantar and palmar surfaces being so frequently primarily attacked, suggests treading or falling on some sharply pointed body, corn-stubble, for example. The cause of Actinomycosis has been attributed to a fungus affecting barley; so too, in Mycetoma, a sharp piece of straw, or awn of barley, may have pierced the skin, or the parasite may even have entered by a sweat duct, or hair follicle. From the above it will thus be readily understood why the bare-footed natives are alone affected, and also, that, owing to their custom of working and sleeping without clothing, that their trunks and upper limbs might occasionally be inoculated. The manner too, in which the inferior castes mix up bhoosa with clay, by means of their feet, for making bricks, or for plastering walls of houses with their hands, have often suggested themselves to the writer as very likely means of inoculation; indeed, when all such possibilities are considered, it is to be marvelled that parasitic or other diseases are not much more prevalent among such people. Hence also, Europeans, Eurasians, and the higher caste natives, have a complete immunity from the disease. Agriculturists, coolies, and those whose work is in the soil, adults rather than children, men more frequently than women, in the proportion of 95 per cent. of all cases, are the most prone to its effects. It would further seem probable that the fungus or its spores exist in soil or clay; thus Minas‡ records the case of a potter whose right hand was affected.

Incubation.—Very little is still known of the duration of the incubation stage of the disease. Dr. V. Carter thinks that it is probably not less than a year, but even two years have been suggested by some observers. Likewise our knowledge of the season in which the disease first appears, is equally obscure, or at least indefinite, for the statements of native patients on such points are rarely reliable; it seems possible, however, that in most instances the disease first manifests itself during the early part of the hot weather, *i.e.*, in March or April, and that the inoculation had previously taken place just after the rainy season of the previous year; this would give from six to nine months as the period of incubation.

Initial Development.—The disease is a purely local one, chiefly attacking the foot or hand. The patient generally mentions the occurrence of a slight wound at first, followed, after some interval, by a small blister, boil, or local circumscribed inflammation (*punsi*). Subsequently, a nodular growth forms, of variable size, which throws out projections into the underlying deeper structures. It is certain that the skin and subcutaneous tissue are, primarily, alone affected, and the firmer and more internal tissues, later. The boil or blister soon bursts, or is opened by the knife, and a thin, more or less opaque, sero-purulent, or sanious fluid escapes, which, either from the first, or sooner or later, appears to possess a definite colouration, black, brown, yellow, or red, which colour, on a more careful examination, will be found to be due to minute ovoid or spherical particles, of any one of the above colours, and not to any tinting of the fluid itself. In most cases, these particles are visible to the naked eye, and form the special characteristic of the disease; indeed, according to their colour, Mycetoma has been described as occurring in three forms or varieties, the Black or Melanoid, the White, Yellow or Ochroid, and the Pink or Red. The first of these is most frequently met with, and the last is extremely rare, and has been described by Lewis and Cunningham as a phase of the Ochroid variety. Many observers have endeavoured to prove that one

* Trans. Ind. Med. Congress, 1894-95, p. 119.
† Boccaro, *idem*; and Ind. Med. Gaz., 1893 and 1894.
‡ Ind. Annal. Med. Science, Vol. VII., p. 816.

of these forms is a degenerate stage of another, or *vice versâ;* this will be referred to later, in discussing the relationship of the varieties to each other; at present, suffice it to say that the writer believes that these are due to different fungi of the same genus. It will also be shown that more than one variety never occurs or is found together in the same tumour. Clinically, the Black variety seems to be the most chronic, and is accompanied by less pain and cachexia than either of the other two; the Red, especially, appearing to run an acute and rapid course. The Ochroid is the commonest form met with in Southern India, Bengal, and the North-West Provinces, whereas in Gujerat, Cutch, and Sind, by far the larger proportion of cases are of the Black variety.

Symptoms and Course.—The skin gradually assumes a blue or purplish hue, and becomes raised, indurated, and adherent. The pain, slight at first, becomes more marked after the bursting of the pimple or pustules, and once this has taken place, a sinus or sinuses form, which never heal up. The swelling extends, standing out like a tumour in contrast with the surrounding tissues; this swelling is not to be confounded with œdema, for although it may "pit" on firm pressure it is generally more solid and inelastic. To the foot it gives somewhat of the appearance of talipes equinus, with the exception that the patient walks upon his heel. The hand loses its expression, from the implication of the roots and clefts between the fingers. In the foot, the swelling often commences in the great toe, and extends upwards. During the earlier stages the swelling is circumscribed, resembling a tumour, and appearing to send off branches in different directions, thus simulating the character of carcinoma; but as the swelling increases, these become less perceptible, and the tumour possesses neither uniformity nor definition. As time goes on, more pustules or tubercles appear on the surface, and more sinuses form, the swelling of the pustules remaining after they burst, so that there are to be seen little tubercles or mammillated swellings, on the apex of which are fistulous openings, with raised or pouting edges or lips; these are found on both aspects of the limb, and vary in number from one or two to many dozen. The sinuses penetrate deeply into the substance of the limb, varying much in calibre; they are lined by a smooth membrane, and generally communicate freely with one another. An oily or ichorous discharge slowly exudes from them, usually containing the characteristic particles; and, as a rule, some of the latter can be squeezed out of the mouth of the sinus by pressure on the skin around it. It is said that the disease sometimes commences as an abscess, which bursts through a single opening, thickening and induration of the surrounding tissues subsequently occurring. The course of Mycetoma is often extremely chronic, especially in the Black variety, extending to 4, 6, 8, 10, or sometimes even to 30 years; but the duration of the disease will, no doubt, depend on, and be limited by, its disturbing effects upon the patient's constitution. The growth, too, will extend in the direction of the least resistance, appearing only to be temporarily arrested in its progress by a joint, such as the ankle, wrist, or knee, until at last the limb may exceed many times the size of its fellow; thus Carter* states that the foot may reach a circumference of over 20 inches. In its course the growth penetrates and perforates the tarsal or carpal bones, the tubercles and nodes on the surface becoming larger and more numerous, until the limb assumes a shapeless mass, riddled with holes.

Termination.—Mycetoma very rarely, if ever, ends in spontaneous recovery. Death may result from exhaustion, from pyæmia, or from some complication due to the debilitating nature of the disease, such as diarrhœa or pneumonia, unless such a termination be averted by timely operative interference. In Mycetoma, as far as we know at present, visceral infection or metastasis does not occur, in which respect, consequently, it differs from Actinomycosis.

Diagnosis.—The general appearance and history of this affection are so remarkably characteristic that it would seem to be impossible to mistake it. In its earlier stages, Mycetoma might be taken for a boil or small abscess, but especially for a Guinea-worm, in localities where the latter is prevalent; a puncture would probably soon decide the diagnosis, but should the cha-

* Carter, Collected Papers on Mycetoma. London, 1874.

racteristic particles at first fail to appear, the discharge should subsequently be repeatedly examined for them; or, if a Dracunculus be suspected, the limb should be placed in water for a few hours, after having first punctured the inflammatory swelling, when, presently, the parasite will come to the opening to lay its eggs in the water, and immediately be recognised. In its later stages the swelling of Mycetoma might be confounded with that of Elephantiasis, but the former is more localised, seldom extending above the ankle, and being more nodular, and its peculiar sinuses, from which the characteristic discharge may be squeezed, should alone be sufficient to distinguish between them.

From caries of the tarsal or carpal bones the diagnosis is more difficult, especially in the Ochroid variety, where the particles are less readily recognised, or their appearance is delayed, or, in cases where the constitutional disturbance of the patient affected with the fungoid disease, is marked. Owing to the fact also that, in Mycetoma, not unfrequently, bare and roughened bone can be detected by probing the sinuses, the difficulty is the more increased; but the number of openings, their tuberculated appearance, smooth lining membranes, and peculiar discharge, must eventually indicate the true nature of the disease. Tumours, benign or malignant, such as osteomata, enchrondromata, sarcomata, or osteosarcomata, might be difficult to distinguish from Mycetoma, but this seems hardly possible, for the rapidity of a malignant growth would alone be a sufficient distinction; moreover, when the growth of the fungus has reached such a stage as to resemble a tumour, the sinuses will have formed, and the peculiarly characteristic discharge have appeared.

Treatment.—It is unfortunate that the subjects of Mycetoma rarely present themselves to European surgeons in the earlier stages of the disease, for it might then be quite possible to eradicate the fungus by excision before it had penetrated into the deeper structures. Dr. William Huntley * describes two cases in which he had successfully excised the growth, dissecting out the long cylindrical projections from the plantar fascia, and, the wounds having healed up rapidly, there had been no return of the disease. Excision of the mass with all the sinuses, combined with scraping the stump, has been strongly recommended, and undoubtedly is the proper operation in all cases where the growth is sufficiently circumscribed to allow of its performance. Caustics, such as potassa fusa, strong nitric and sulphuric acids, and injections of powerful antiseptics into the sinuses, have been tried without any success; indeed, for most of the cases which come under the observation of surgeons there is only one successful treatment, and that is amputation. This should be so effected as to completely remove all the tissue implicated or invaded by the fungus, but it is not necessary to remove more than this, for so long as the flaps are so cut as to avoid the infiltrated structure the disease is not likely to return. Amputation usually completely eradicates the disease, but it does occasionally recur in the stump, thus Boccaro mentions five secondary, and one tertiary, recurrences. It is believed, however, on good grounds, that in such cases the original growth had not been completely removed.

Case.—The following case, taken from the writer's notes, presents a typical example of the clinical signs and appearances of Mycetoma, running an unusually rapid course, and it will also be seen that it possesses special points of interest of its own.

No. 2,384, K——, third grade sweeper, A.H.N. Corps, aged 29 years, was admitted into the Departmental Followers Hospital, Rawal Pindi, on 31st March 1889. He then stated that he had only recently been transferred from the North-west Provinces to the Rawal Pindi District; that, about two months prior to his admission, he felt pains in his left foot close to the toes, which then slowly commenced to swell; that a month later he applied a dozen leeches to the dorsal and plantar surfaces, but without benefit.

When first seen immediately after admission there was a solid, œdematous, and somewhat globular swelling of the lower half of the left foot (metatarsal region), chiefly confined to the dorsum, but the plantar surface was also affected. The swelling was firm and brawny, but pitted on strong pressure. There was a sinus on the dorsum immediately over the fourth and fifth cubo-

* Glasgow Medical Journal, Vol. XXXII., p. 344.

sinuses or channels may be empty and patent, or filled with a syrupy or oily fluid, or with caseous material containing numerous black particles, the so-called "melanoid granules," which vary in size from a grain of sand to that of a bullet, sometimes completely plugging the orifices; but, as a rule, they are small, and have been compared by Lewis and Cunningham, to grains of gunpowder. The cavities themselves may be either filled with a dark substance of firm consistence, consisting of cheesy or fatty matter mixed with the particles, or of aggregated masses of particles, or of similar material, forming the so-called "black masses," which are often closely moulded to their walls. In several cases examined, the dark brown masses contained in the cavities are said to have had a radiating, or slightly striated appearance on section.* The carpal and tarsal bones may be softened and excavated, or absorbed, to a greater or less extent, and penetrated in every direction by the lined channels, so that, in many cases, a knife will readily pass through them; but the degree of softening varies, from being simply porous and firm, or spongy and friable, to a greasy pulp, indistinguishable from the soft parts. On the whole, there is noticed generally, in sections of this variety, that there are not the same marked degenerative changes associated with softening, as in sections of the Pale variety, and that a much greater proportion of the growth consists of dense fibrous tissue, which gives it a marked firmness, causing the channels to be more patent and apparent, and indicates the chronic nature of the disease. The muscular tissue is much atrophied, but does not disappear entirely; on the other hand, fibrous and tendinous structures seem to be unaffected.

The black particles and masses vary in size, from being just visible with the naked eye, to equal that of a walnut. They are commonly regarded as corresponding to the sclerotia, or resting stages, of the mucorini and other fungi, being formed of detached portions of the mycelium, and therefore consist, for the most part, of vegetable matter. They may be simple, or composed of a number of smaller particles closely united together, their shape varying accordingly, and their surface is smooth, nodular, or mulberry shaped, and they may be firm or even hard in consistence. They seem to be formed of a thin capsule, containing an aggregation of granular particles, which in turn consist of a dark material, enclosed in a thin limiting membrane, from which the contents may be squeezed out by pressure. Their colour varies from a dark yellow, to a deep brown, or black. The colouring matter appears insoluble in alcohol, ether, or chloroform, showing that it is not combined with fat, but it is soluble in alkalies, especially in caustic potash, on boiling the particles in which all the pigment may be dissolved out. Lewis and Cunningham found that by soaking the black particles in a 25 per cent. solution of nitric acid, they were changed to a red colour, like the "cayenne pepper grains." This fact is extremely interesting, and suggestive that the Pink, (or in their opinion perfect) variety of the fungus, has derived its colour from the formation of an acid in the tissues, or to an acid condition of the fluid and juices which bathe them. The black particles have been observed to have been expelled from the sinuses in the very earliest stages of the disease, which fact would seem to disprove the theory that this variety is a pigmentary degeneration of the Ochroid form.

(β.) *Microscopical appearances.*—If a simple cover glass preparation be made from one of the black particles, or from a portion of one of the black masses, possibly nothing more can be made out except an opaque blackness, formed by an aggregation of pigment granules. Other specimens may be seen to consist of an interlacing network of fine tubules, the walls of which are more or less pigmented, and dark pigment may also be seen more or less abundantly in the intertubular spaces. To see the fungus clearly and in its relation to the surrounding tissues, it will be necessary to boil one of the black particles, or a section from one of the masses, in a concentrated solution of caustic potash, for half an hour or longer. No change is observed, but on afterwards plunging the specimen into distilled water, all the colouring matter is diffused out, leaving a completely decolorised mass. It should then be washed in ether or chloroform, and mounted in Farrant's solution; or it may be stained by Gram's method, which, however, only colours the central mycelium blue; hence, to exhibit the peripheral rays or hyphæ of the fungus, a counter stain of orange rubin or eosin must be made use of.

* Lewis and Cunningham, *op. cit.*

Dr. Kanthack* recommends Dr. Lloyd Jones' method of preparation, using aniline gentian-violet and eosin, by which means the mycelium and nuclei are stained blue, and the rays and other tissues red. Kanthack considers, however, that the best results were obtained by staining with Delafield's hæmatoxylin, and counter staining with eosin. For the examination of the particles *in situ*, Dr. Oliver, and after him Boyce and Surveyor, strongly recommended Eau de Javalle as a clearing agent, that after dehydration, the black particles should be embedded in collodion, and cut; then decolourised by steeping in Eau de Javalle for two or three minutes, till the bubbles begin to rise, and finally washed again in Eau de Javalle after hardening in methyl chloroform to clear the section. When the colouring matter is removed by any of the above processes, the constituents of the fungus are clearly defined. Specimens of the Black variety seem to be much less variable than the Ochroid, and for this reason, as well as from the distinctness with which the fungoid elements are always seen, all the earlier observers admitted the former to be due to a fungus.

The fungoid elements are exhibited in a section in various shapes, generally as tufts, arranged in a fanlike, or crescentic, form; or they may be reniform, oval, spherical, or oblong. They consist of fine tubules or filaments, radiating from a centre, branching and spreading out to end in the rays, which, when present, form a fringe towards the periphery.

In a typical specimen there may therefore be seen† :—

(1.) A central, more or less open network of threads, which have in most instances a distinctly radiating arrangement, and are prolonged into—

(2.) A narrower and denser arrangement of threads, somewhat deeply pigmented, and termed by Kanthack "The Marginal Zone."

(3.) On the convex or peripheral border of the Marginal Zone is seen an edging of bright, clear, and homogeneous rays or clubs, broader towards their peripheral extremities, yet arranged closely side by side, so as to form a regular pallisade.

Under a high power the threads forming the central interlacing network are found really to be hollow tubes, the colouring matter of the stain being deposited in their walls only, leaving the centre clear. A few pus and granulation cells are found within the rectioulum. Coccoid bodies, like those observed in Actinomycosis, have also been noticed, but in the opinion of Dr. Kanthack these are nothing more than transverse sections of the tubes. In older specimens, masses of pigment may be noticed in the interfilamentous spaces, probably due to degenerative changes (Kanthack).

The threads and tubes of the central network can be traced into the so-called Marginal Zone; they there become more deeply pigmented, and closely interwoven. Upon this Zone the shape of the fungoid nodule will depend, forming as it does, its convex margin, and the base of the rays. When Gram's method of staining has been employed, the central network stains blue, likewise the denser pigmented peripheral zone, but the rays remain unstained, clear, and glassy. In this respect the fungus shows a marked similarity to Actinomyces. In typical specimens, when thus stained, according to Kanthack, fine blue threads can be distinctly seen, passing from the peripheral border of the Marginal Zone, and entering for some distance into the centre of the rays, where they end in thickened or club-shaped extremities, readily recognised by their blue colour, in the glassy substance of the unstained rays, thus again resembling Actinomycosis Bovis. Few observers, however, have been equally fortunate in discovering these clublike endings of the central mycelial network.

As the filaments and tubular network form the mycelium of the fungus, so the rays or clubs represent true hyphæ. Like those of Actinomyces, they are sometimes absent, probably much more frequently than in the latter, especially in very old or very young specimens of the fungus; when present, they are usually well marked and very conspicuous, more so, even, than in Actinomyces. As a rule, they are large, hyaline, or vitreous, and, as above mentioned, do not stain by Gram's method, nor by any nuclear stain, and therefore for their clear definition they require to be stained with eosin or

* Journal of Pathology and Bacteriology, Oct. 1893.
† Kanthack, Journal Path. and Bacteriol., Oct. 1893.

orange rubin. In the earlier stages they appear to be small and clubbed, but gradually become more hyaline, large, and wedge-shaped. They may encroach on and penetrate adjoining vascular structures, but in older specimens the formation of necrosing or fibrous tissue leads to their degeneration, and granulation cells appearing between the individual rays, causes their absorption and ultimate disappearance. The rays seem to be united to the mycelium, each by a slender filament, which Kanthack has been able to trace through the Marginal Zone to the central network. When well developed, the rays or clubs are invariably surrounded by a dense mass of granulation tissue, containing giant-cells and phagocytes; under such circumstances they are usually more closely grouped together, forming a dense pallisade. On the other hand, when there is considerable tissue destruction, as a result of the invasion of the fungus, the rays, if present at all, run in one direction, and are stunted and meagre.* In conclusion, the rays, or hyphæ of the fungus, must not be considered as organs of fructification or indeed of any biological importance, but simply swollen mycelial threads, this condition being due to degenerative changes from deprivation of nourishment, or, as Dr. A. Rufferț thinks, it is the reaction of the fungus against the giant-cells, which have attacked the mycelium.

2. *White, Yellow, or Ochroid Variety.*—With a description of the morbid anatomy of this, will also be included that of the Pink variety, because at present there is no definite evidence to prove that it is distinct from the Ochroid form; indeed, the naked eye appearance of a section is similar, except for a few streaks, or a tinge of pink colouring matter, seen on its surface, or the colour of the particles discharged; but the amount of colouring observed in a section of the growth is extremely small compared with the quantity of pale tissue present. Lewis and Cunningham were doubtful if the pink colour could be seen at all in freshly cut portions of the growth, for it appeared to increase while their specimen was under observation, they therefore were of opinion that the Pink was merely a phase in the development of the Ochroid variety.

(a) *Macroscopical appearances of the Yellow or Ochroid form.*—On making a section through the part affected with this variety of the fungus, the observer will at once be struck by the softness of the bony structures, the amount of oily gelatinous fluid present in the sinuses and cavities, the difficulty of recognising the anatomical structure of the parts, owing to the apparent homogeneity of the tissues, and, lastly, by the remarkable absence of vascularity, and the pallor of the cut surface. The amount of swelling and hyperplasia is very considerable, especially in the directions in which there is least resistance, and where soft tissues predominate, such as the plantar or palmar surfaces. The bones may retain their outline, and yet be reduced to a soft, greasy, or cheesy pulp, in which there may be numerous cavities or excavations lined with a smooth membrane, and either they may be filled with yellowish oily or glairy fluid, containing innumerable spherical particles like fishes' roe, or millet seeds, or they may contain more or less solid, caseous or greasy matera. As in the Black variety, these cavities may be solitary and isolated, or numerous and scattered indefinitely, or with some show of symmetrical arrangement. Likewise also are to be seen similar lined channels communicating with each other and with the cavities, branching in every direction, and opening on the surface of the skin at the apices of little tuberculiar projections, and with everted and pouting lips; and containing, besides, or an oily or sebonous fluid the characteristic roe-like particles. As in the Black form the particles are occasionally absent, in which case the oily fluid fills the channels and cavities, and bathes the tissues of the growth. The colour of the particles is invariably characteristic of their own variety of the disease, and at no period in the development of the fungus, do they give place to particles of any other colour. Black or brown pigment is generally absent, although in rare cases some signs of pigmentary degeneration have been observed. Compared with the Melanoid form, there is on the whole, in the Yellow, more marked evidence of inflammatory reaction; of fatty and mucoid degeneration of the fungous structures and inflammatory products,

* Lewis and Cunningham, Phil. Trans. Roy. Soc. Vol. 183 B.

with their subsequent destruction; and less tendency to the absorption of moisture or to the formation of much fibrous tissue.

The roe-like particles are chiefly spherical or ovoid in shape, but may be irregular, or consist of aggregations of smaller granules. In size, as a rule, they are smaller and less variable than the Black particles, ranging from $\frac{1}{100}$ inch to $\frac{1}{4}$ inch in diameter. Their colour is usually an opaque creamy yellow, but may vary, from white to yellowish brown or grey in tint. Their consistence is also variable, from being so firm as to resist sufficient pressure to form a cover-glass preparation, or "to be picked out of the tissues by means of a pin," to being quite soft, and cheesy or greasy. They are soluble in alkalies, and like the Black variety, the morula forms can be separated into their component granules, each of which consist of fungoid elements.

(*β.*) *Microscopical appearances.*—Very considerable discrepancy exists in the results of the investigation of the microscopic appearances of this variety by different observers. Thus, Carter, Lewis and Cunningham, and others, considered that the fungoid masses and particles consisted, for the most part, of a central granular mass, without any traces of a fungus, surrounded by caseous concretions, and towards the periphery, by a radiately arranged fringe, "apparently of crystals of a fatty nature"; in other words, they denied any similarity of structure of the White to the Black variety, its fungoid nature, or that it was a degenerated stage of the latter form. Boyce and Surveyor,* whose experience and most careful investigations give their opinion considerable weight, regard the particles and fungoid masses as concretions of caseous, and probably also, of phosphatic matter upon a nucleus possessing traces of a fungus; they were not prepared to acknowledge the existence of the central mycelium of fine filaments described by Kanthack, believing that this observer had mistaken the outline of the cells in a pseudo-parenchyma for a branched filamentous central network. Thus, the opinion of Kanthack and also of Hewlett, demonstrates the existence of a central mycelium, with peripheral rays, and attempts to establish the similarity of the structure of the White to the Black form, and the identity of both, to Actinomyces.

Having, by the kindness of Dr. R. J. Hewlett, been permitted to carefully examine his preparations, and having compared them with Dr. Kanthack's descriptions, the writer feels convinced of the accuracy of most of the latter's observations, and that a delicate branched network of fibrils does, in some instances at least, certainly exist, and also of the resemblance of this variety of the fungus to Actinomyces. On the other hand, it is well to bear in mind that even in Actinomyces the central mycelium is sometimes absent, that the Ochroid variety of Mycetoma is much more variable than the Black, and that it has been subjected to a more severe inflammatory action, and consequently, is more likely to show signs of greater destructive and degenerative change.

For the examination of the fungoid masses, or roe-like particles, Boyce and Surveyor recommend boiling them for some minutes in absolute alcohol, ether, chloroform, or some other fat solvent, and then to clear by means of strong hydrochloric acid, as caustic potash or Eau de Javalle completely destroy the particles. When mounted unstained, probably nothing more will be seen than a central nucleus of granular matter, which may contain traces of a central mycelium, surrounded by a somewhat darker, and indistinct, peripheral zone. If, however, the particles, or a section cut from a typical part of the diseased tissue, be treated as above, and stained by Gram's method, numerous darkly stained bodies, reniform or crescentic in shape, will be seen scattered about the specimen; they appear to be embedded in granulation tissue and leucocytes, and the whole surrounded by a more or less delicate fibrous capsule. Under a high power, these bodies appear at first sight to consist of a fine granular structure, with a distinct dark outline, and surrounded by a deep vitreous border, which may be hazy or highly refractive, and showing a radiating striation fading into the granulation tissue around. When orange-rubin, or the Erlich-Biondi reagent, has been used (Hewlett) or Hoffman's green and eosin (Boyce and Surveyor), well marked and typical clubs may be seen to compose the above bright and refractive zone, forming a deeply staining irregular fringe, or they may be short, stunted, and uneven. The centre of the reniform bodies may also be seen, in many instances, to consist of a network

* Trans. Phil. Roy. Soc., Vol. 185 B., 1894.

of delicately branching fine threads, which become denser and more deeply stained towards the margin (mantle or marginal zone), from which fine filaments have been traced into the peripheral clubs by Dr. Kanthack. The characteristic microscopical appearances of the White variety, therefore, are the reniform or crescentic bodies, with their dark marginal outline, and surrounded by a very conspicuous glassy zone, not staining by Gram's method, and exhibiting a radiate striation, which, by staining with suitable reagents, is shown to consist of a close pallisade of degenerate clubs or hyphæ. Not infrequently the mycelial reticulum may be absent, or cannot be made out; or occasionally there may be no peripheral radiate zone. In other cases, the reniform or crescentic bodies may be absent, as well as their radiate zones, and in their place, peculiar, firm, dark, fungoid bodies may be observed, scattered through a matrix of round or granular cells: these bodies are of irregular or crescentic shape, they refuse Gram's stain, but with Erlich-Biondi reagent, they show a reticulated or honeycomb appearance (Hewlett).* Lastly, where a marked inflammatory condition has existed, a mycelium has been observed, growing in fine threads between the pus cells. From even the above imperfect descriptions, it seems almost conclusive, that the marked signs of degeneration in so many of the specimens of this variety of the fungus which have been examined, offer the best explanation to the difficulty of reconciling the want of similarity in the results of various observations; thus Kanthack,† describing the degenerative changes in the Ochroid variety, says, "As the granulation tissue is "developed, the large rays gradually disappear, and become separated, then is "noticed outside the marginal zone, a clear transparent area, which in "unstained specimens often has a glassy lustre and slightly greenish tint, into "which the mycelial filaments extend, at the same time the mycelium becomes "more and more unrecognisable, appearing, when stained with hæmatoxylin, "as a dark blue or black mass." A remarkable coincidence cannot but be noticed if the above be compared with Boyce and Surveyor's‡ description of the fish roe-like particles and fungoid masses of the White variety of Mycetoma.

Summary and conclusion.—It will thus have been seen that two, at least, of three varieties of Mycetoma, are distinct from each other, and that both these present the strongest macroscopical and microscopical resemblance to Actinomycosis. Moreover, the hypothesis that one variety is a more advanced, or degenerated, stage of the other, can be clearly refuted, since each variety has been carefully examined, both clinically and pathologically, in various stages of development, and each has always shown its own distinctive characteristics; thus the Black variety has never been seen, at any stage, to produce any other coloured particles but black, the Ochroid only the "fish-roe" particles, and the Pink the "cayenne-pepper" grains. So also, in anatomical sections of every specimen, from the earliest to the most advanced stage of the disease, no admixture of the products of any two of these varieties of Mycetoma has ever been observed. It is true that one such case has been reported among the specimens in the museum at St. Bartholomew's Hospital, and another, mentioned by Lewis and Cunningham;§ but it is probable that in the first instance the particles from two different specimens had been mixed in the preserving bottle, as both were not found in the specimen itself, and that, in the latter, some unusual pigmentary degeneration had occurred. Thirdly, when the morbid structures have not been thoroughly removed in the operations of excision and amputation, the disease recurs, of which several instances (both secondary and tertiary) have been reported by Boccaro‖; the Black variety invariably returns as the Black, and the Pale or Ochroid as the Pale. Lastly, animals inoculated with cultivations from the Ochroid variety, as already mentioned, developed tumours at the seat of inoculation similar to that from which the original culture material was obtained; but, as far as can be ascertained at present, a conclusive argument is still wanting, by the failure of all attempts to cultivate the Black variety artificially, or both varieties, by direct subcutaneous inoculation.

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* Trans. Pathol. Soc., 1893, p. 170.
† Journal Pathol. and Bacteriol., Vol. I.
‡ British Medical Journal, April 22, 1893.
§ Report of the Sanitary Commission of India, 1874.
‖ "Lancet," Sept. 1893, p. 707.

APPENDIX No. VI.

REPORT ON THE CHOLERA CAMP AT KOKRAIL, LUCKNOW, FROM 31ST JULY TO 27TH AUGUST 1894.

By Surgeon-Captain H. N. THOMPSON, M.B., Army Medical Staff.

On the afternoon of July 31st, 1894, I was ordered to follow C and F Companies of the 1st Battalion East Lancashire Regiment, which had started a few hours earlier, from Lucknow Cantonments to No. 5 Sanitary Camp at Kokrail, about six miles distant. Five companies of this regiment, including these two, had been in the preparatory camp on the Brigade Parade ground for three days previously, during which time rain had fallen very heavily, and their camp had been partially swamped. It cleared up on the morning of the 31st, so, following the existing regulations, as there had been several cases of cholera during the previous day and night, it was decided to move this body of men into cholera camp. When I arrived at Kokrail these two companies (C and F) were employed in pitching their camp. Very heavy rain came on almost immediately, and soon soaked men, tents, bedding, and everything. The tents for the other three companies (A, G, and H), who were to march out in the evening, had also arrived, and C and F were ordered to pitch them; but the men were so wet and exhausted with the work they had already done and their long march, that they were unable to complete the work, and it was stopped on my recommendation. Before the tents for the hospital were pitched, a private was seized with cholera, and had to be laid under a tree on the side of the road. The weather cleared up a little towards evening, when the other three companies arrived with Surgeon-Lieutenant Pilcher in medical charge. It rained heavily during the night of the 31st, and a second man was seized with cholera.

Morning cholera state 8 a.m., August 1st, showed:—

Admitted.	Died.	Remaining.
2	—	2

It continued to rain almost unceasingly on August 1st, and by evening the camp had become a regular swamp. Several fresh cases of cholera came in during the day and night. One medical warrant officer was placed in arrest and sent back to Lucknow for refusing to attend to a patient, all the temporary hospital servants deserted, and we were so short-handed that medical officers and warrant officers had to put their hands to everything, do sweepers' work, and remain day and night in the hospital.

The cholera state at 8 a.m., August 2nd, showed:—

Remained.	Since admitted.	Died.	Remaining.	Total of Cases.
2	17	5	14	19

There were present for duty Surgeon-Captain H. N. Thompson, Surgeon-Lieutenant E. M. Pilcher, Assistant-Surgeons O'Donoghue and Mann.

On August 2nd the situation became worse, more cases kept occurring, especially during the night, which was very dark. The rain still poured down unceasingly, there seemed to be a continuous thunderstorm going on all night. Both the Assistant-Surgeons, Messrs. O'Donoghue and Mann, who had worked incessantly, without rest, soaked with wet, and with very little food, became exhausted. All the temporary hospital servants, freshly provided by the Commissariat, again deserted.

I was now reluctantly forced to employ soldiers to assist, so had the company orderly sergeants paraded, and called for volunteers. Plenty of men came forward, from whom I chose 12 and a lance-corporal, and, after describing their duties, and warning them to disinfect their hands and arms after touching the sick or their discharges, set them to attend the patients.

Nothing could be more admirable than the plucky and earnest manner in which these men worked. Unfortunately, almost immediately, one of their number, Private W., was taken ill and died the next day, but another man immediately came forward to fill his place.

The cholera state at 8 a.m., August 3rd, showed :—

Remained.	Since admitted.	Total.	Died.	Remaining.	Total of Cases.
14	28	41	9	32	47

On August 3rd the weather still continued awful; the camp was like a lake, all the bedding and kits brought with the men to hospital were soaking, and the fresh bedding, applied for through the Commissariat, had not yet arrived from Lucknow. The sick were placed on dry blankets spread on charpoys, the legs of which were sometimes not long enough to keep the patients' bodies out of the water. Fresh cases continued to occur very rapidly, but it was out of the question, owing to the tremendous downpour, to attempt to shift the tents.

It was almost impossible to have anything warmed or cooked, as no fire would burn. I now took on five more men as orderlies, and they were all busily employed night and day in rubbing men with cramps, and giving drinks and nourishment, though they also had to use bed-pans and empty discharges, as I had only two Army Hospital Corps sweepers, who remained faithful and did what they could, but they were very wet and tired from being so long unrelieved, and were quite unable to attend such a large number of men all ill at the same time. The men employed each day by the Commissariat and handed over to me were quite useless, and took the first opportunity to go off unobserved. All through the night of the 3rd the scene in the hospital camp was one of such horror that it is difficult to find words in which to describe it. The rain poured down unceasingly, a furious thunderstorm raged nearly the whole night, which was as dark as pitch, except when lit up by the lightning flashes. The place resounded with cries for mehters and bed-pans, with the groans and cries of men suffering from muscular cramps, and the sounds of vomiting and purging.

The dead and dying and those recovering were often lying for some time together in the tents, for it was impossible to have the bodies removed immediately, as the kahars were kept constantly employed in carrying fresh sick to hospital.

In the distance there were almost constant calls for dhoolies among the Companies' tents, while numbers of fresh cases were being carried in and deposited on charpoys, in tents in which there was often six inches of water.

Mens' kits and bedding were carried into the hospital enclosure and thrown anywhere; and still the whole night through the pitiless rain kept pouring down, while the thunder cracked right over our heads, and the lightning flashes were almost blinding. During that awful day and night 32 were admitted, and 14 died.

In the morning, sorting out the bodies in the staff sergeants' tent which served for a mortuary, and getting them identified, was the saddest duty I had ever done.

Through all this time there was not a murmur or a sign of unsteadiness among the men; they turned out for my inspection as if nothing unusual was going on, though there was now but one tent in the camp which had not lost a man or more. As for the orderlies I had employed, the only difficulty I had with them was to make them take any rest at all; in spite of my wishes and orders to the contrary, many of them worked unceasingly night and day; and when sent away to rest would steal back to the hospital to work.

On the afternoon of the 3rd, Surgeon-Lieutenant Withers and Assistant Surgeons McCarthy and Atwell arrived.

The cholera state at 8 a.m., August 4th, showed:—

Remained last Return.	Since admitted.	Total.	Died.	Remaining.	Total of Cases.
32	32	64	14	50	79

During the morning the rain ceased, and in the afternoon, when the tents had dried a little, the Companies moved and spread out, C and F going right away beyond the officers' camp to the north of the Fyzabad Road, the other three, A, G, and H, spreading out in the opposite direction, and placing their tents well apart on undulating ground and wherever a favourable looking dry spot was noticed. I was also able to shift the hospital to a new position on the highest and best part of the camping ground, where the soil was sandy, covered with long thin sedge grass, and the water did not lie. There was also a section hospital placed on the north side of the road, near C and F Companies. Assistant Surgeons Murphy and Holmes with some hospital servants and kahars arrived in the afternoon. The well in camp, from which we had been drawing our water supply, which was situated on ground largely defiled by cholera dejecta, was temporarily closed on my recommendation, and water supplied from Lucknow by the Cantonment magistrate's carts.

Looking on this well with suspicion, the men had been recommended by me to drink as little water as possible, and there were large quantities of aërated waters sent out from the regimental factory and consumed. I was still in great need of sweepers; the night before the commissariat sergeant had hired some of those on the regimental establishments at one rupee each for the night. I now offered them two rupees a man, but they refused to work in the hospital at any price; so the work had to be done by the orderlies, as the Army Hospital Corps' sweepers were now exhausted.

During the night of the 4th all the kits of those who had been admitted to hospital, which were stored in a tent in the old encampment, were rifled by villagers, commissariat mule and bullock drivers, and other natives. As the remains of the clothing and bedding appeared hopelessly ruined by the weather, and there was no possible means of saving and disinfecting, I recommended its destruction, as it was largely contaminated with cholera discharges, and was being stolen and carried in all directions, thus becoming new possible foci for the spread of the disease.

The cholera state at 8 a.m., August 5th, showed:—

Remained last Return.	Since admitted.	Total.	Died.	Remaining.	Total of Cases.
50	7	57	6	51	86

The weather improved on the morning of the 5th, all the patients were washed and placed on dry fresh bedding which now arrived from Lucknow,

as did also a supply of fresh milk and eggs. It was possible now to detail regular duties and watches for all connected with the hospital.

Another thunderstorm with very heavy rain came on at night.

The cholera state at 8 a.m., August 6th, showed :—

Remained last Return.	Since admitted.	Total.	Died.	Remaining.	Total of Cases.
51	5	56	12	44	91

It was still raining on the 6th ; several men had died during the night from exhaustion, due to persistent vomiting and diarrhœa, and also from uræmia. The numbers of fresh cases coming in were falling in such a marked degree, that I strongly recommended the military authorities not to move the men and put them to the fatigue and exposure of shifting their wet tents to another camping ground. I had the site of each tent changed, however, in which a case or cases had occurred for the past two days.

The cholera state at 8 a.m., August 7th, showed :—

Remained last Return.	Since admitted.	Total.	Died.	Remaining.	Total of Cases.
44	3	47	2	45	94

The 7th August was a really fine day, with a strong breeze blowing, which dried up everything. There was now plenty of dry clean clothing and bedding and milk and eggs were supplied daily.

The cholera state at 8 a.m. on August 8th showed :—

Remained last Return.	Since admitted.	Total.	Died.	Remaining.	Total of Cases.
45	3	48	2	46	97

This was a very hot day. All the tents which formed the old hospital were disinfected. The troops in camp looked well, and appeared comfortable.

The cholera state at 8 a.m., August 9th, showed :—

Remained last Return.	Since admitted.	Total.	Died.	Remaining.	Total of Cases.
46	2	48	2	46	99

The 9th was dry, though hot and oppressive. In the afternoon C and F Companies moved to the volunteer rifle range, about one mile distant, on the opposite side of Kokrail Nullah. The section hospital also moved there.

The cholera state, 8 a.m., August 10th, showed :—

Remained last Return.	Since admitted.	Died.	Remaining.
46	0	0	46

The two cases on the 8th were the last which occurred, and this was the first day on which there was no death.

A and G Companies also moved to the rifle range in the afternoon.

The cholera state, 8 a.m., August 11th, showed :—

Remained.	Admitted.	Died.	Remaining.
46	0	5	41

On the 12th there was no admission and no death. H Company moved their tents to a ridge overlooking Kokrail Nullah.

The cholera state at 8 a.m., August 13th, showed :—

Remained.	Admitted.	Died.	Remaining.
41	0	1	40

The night of the 12th and morning of the 13th were very wet. When it cleared up and the tents dried, I had several of those forming the hospital shifted to fresh ground, as the surface had become fouled.

On August 14th I was able to discharge seven men who had had light attacks of cholera. They had fresh clothes supplied from the quartermaster's stores, and were accommodated in an E. P. tent, a little way from, but attached to H Company. I reported the poor quality of the meat ration supplied to the troops in camp. Everything remained the same up to the 20th August, when eight more men were discharged. These were also kept in a separate tent.

On August 21st, C and F Companies marched into barracks. On August 22nd A and G Companies, with the section hospital, also marched in ; two cases of dysentery and one of fever, which afterwards turned out to be enteric, were transferred to the Station Hospital. Two medical officers, two warrant officers, and some hospital servants and kahars also returned to cantonment.

On August 24th a private died. He was admitted with cholera on 3rd August 1894, and had made a good recovery, but afterwards suffered severely from boils and prickly heat. The cause of death was erysipelatous inflammation of the neck.

On August 27th H Company and the hospital returned to Lucknow. Nine men were transferred to the Station Hospital, the remaining 14, with some of those who had acted as orderlies, and who now returned to duty, were accommodated in a separate barrack. When the hospital camp was evacuated all the tents were left standing and fumigated. The tent which had served as a mortuary was burnt. The well in the camp which had been temporarily closed since August 4th, was treated with lime and re-opened. Another well, within a few yards of the graves of the men who had died, was permanently closed. All the blankets in the hospital were disinfected, washed, and returned to store, the bedding which had been in use by the patients being burnt.

On July 31st, 1894, we marched out to Kokrail with a strength of 357 non-commissioned officers and men.

Between that date and August 8th 99 cases of cholera occurred and 60 deaths, more than one-fourth of the whole strength being attacked, and more than one-sixth of the whole dying.

Notes at the time.—I had so many things to think of and arrangements to make, in order to cope with the large number of cases of cholera which occurred within a very short space of time, that I was unable to make very accurate or systematic observations in individual cases, so that my remarks are merely general ones, and made more from impressions received than from notes actually taken, for which, it will be easily understood, while the epidemic lasted, there was neither time nor opportunity.

In the first place, the cases appeared to be very distinctly divided into what I may call virulent and non-virulent. In the first stage of the disease these were not to be distinguished, both forms being characterised by vomiting, purging, and muscular cramps. In the virulent cases, when the vomiting and purging had nearly ceased, the surface of the body became cold, clammy, and blueish, gradually turning darker and darker, the pulse became imperceptible, and the eyes and cheeks sunken. The patients became restless, complaining of a feeling of constriction about the chest; the respirations were shallow and sighing. Towards the end the abdomen, in such cases, became very hot to the touch, even though the rest of the body surface felt cold. The temperature in the rectum of those that I tested was found to be from 105° to 107° F., and rose still higher after death. All cases of this type died in from four to 10 hours. I only remember one who approached it and who recovered.

I made, towards the end of the epidemic a post-mortem examination of one of these "Black Cases," a short time after death, before the body was quite cold internally, and found the whole stomach, intestines, and omentum quite green, smelling very badly, and showing signs of active decomposition, which, I feel certain, in these cases, commences before death, and it is the chemical changes of decomposition going on in the tissues which causes the great heat before and after death.

Post-mortem movements, especially in bodies of muscular men who died in this condition, were very common. I saw two bodies, every apparent muscle of which kept up constant contractions for at least an hour after death, just like the contractions of the entrails of an animal freshly killed in the tropics, or as if a thousand electrical machines were being applied all over the surface. I may here add that muscular cramps were present in *all* cases, and seemed to depend, as regards their severity, on the degree of muscularity of the individual, and not on the degree of virulence of the cholera poison.

I was led to look upon this as the most certain and typical symptom of true cholera, and I returned no cases as cholera in this epidemic which did not present it in a more or less marked degree.

Of the non-virulent cases, all had *some* fever when recovering from collapse, and almost all had great irritability of the stomach with bilious vomiting and diarrhœa afterwards. In those who made a rapid recovery these symptoms soon ceased. In others they persisted much longer, the men becoming greatly reduced, and some dying through exhaustion from this cause, after several days. It was observed that two men vomited up some large round worms when in this stage.

I made a post-mortem examination on the body of one of the men who died from exhaustion, apparently caused by great irritability of stomach. The inside surface of the stomach was covered with enlarged blood vessels and grumous-looking material, like blood which had been exuded from the mucous membrane and changed in character. The mucous membrane of the small intestine seemed exfoliating in branny scales, while that of the whole large intestine appeared almost black and gangrenous.

Several of these partially exhausted men suffered from boils, carbuncles, and a severe form of prickly heat which appeared in blisters. The contents of these gradually became turbid and purulent, and finally formed rupeal-looking scabs.

The man got erysipelatous inflammation of the neck, which seemed to start from some of these sores, and he died from this cause on the 17th day after he had first been attacked with cholera.

There were two or three cases of another type, in which a good recovery from cholera was made, but after varying periods the men grew heavy and dull, gradually became comatose, and so died. In one of these cases there were two severe attacks of convulsions, and although the secretion of urine had been re-established in all to a degree, still I feel certain their symptoms and death were due to uræmic poisoning. I made a post-mortem examination of the first of these cases which occurred, and found absolutely nothing in the brain and cerebral membranes to account for the symptoms observed, which, before death, were suspected to be cerebral, as the urinary secretion seemed to have been re-established.

I may here add that Surgeon-Lieutenant Pilcher, A.M.S., who was with me in Kokrail Camp all through the epidemic, agrees with these remarks as fairly describing his impressions of the character of the cases.

General Observations on Treatment.—Chalk mixture, vegetable and acid astringents, lead and opium pills were largely used with men suffering from diarrhœa, but we tried very little medicinal treatment once the disease became established. In some of the severe cases of cramps injections of morphine were given hypodermically, but these cases did not seem to do well afterwards, especially those who had several injections, and I am of opinion it should be used very sparingly, if at all. For muscular cramps, latterly, as soon as we had sufficient attendants to carry it out, we relied mostly on rubbing and kneading of the muscles. I gave a few severe cases small inhalations of chloroform, which seemed to give great relief. Sometimes I seemed to drive away cramps by simple stroking and suggestion, the patient falling into a hypnotic state for a few minutes. We used stimulation by brandy and champagne with soda water, weak and in small quantities. Brand's essence was most useful and convenient for men recovering, especially when nothing could be cooked. In cases of very profound collapse hypodermic injections of ether, brandy, and champagne were freely used, and I feel certain that by this means two or three men who appeared hopeless were saved, notably one man who afterwards suffered from several abscesses and some sloughing in the pectoral region as a result of the numerous injections he had. In the end he made a good recovery.

With the exception of the private who was attacked with cholera the first night he did duty in the hospital, and who had evidently contracted the poison before he came as a volunteer, no one engaged in attending the sick got the disease, though we all freely handled and were stained by the discharges, this being unavoidable owing to the want of sweepers, the frightful weather, and the very large numbers ill at the same time, most of them pouring out their evacuations into the water on the floors of the tents, it being impossible to supply them all with utensils. I attribute the exemption from attack enjoyed by the attendants to the fact that at the door of each tent was placed a bucket full of mercuric chloride solution (1 in 5,000). No one wore coats, and all had their sleeves tucked up, and were warned to dip their hands and arms freely into these buckets. A bucket of the same solution was always kept at the discharge trench for rinsing out utensils after emptying. I may here add that I made the post-mortem examinations on barrack room bed boards and trestles, surrounded by E.P. kanaghts for a screen. The kanaghts were secured standing by being fastened to the branches of an overhanging tree, and thus made a very good improvised post-mortem room. The hospital enclosure was surrounded by a rope on bamboo poles.

I formed a very strong opinion that the hawking of fresh vegetables and fruit brought in from insanitary and cholera stricken villages might be a means of introducing the disease to barracks and Sadar bazars. In a village close to Kokrail Camp, nearly all the inhabitants of which carry fruit and vegetables to Lucknow, I saw a woman dying of cholera laid on a charpoy outside one of the houses. The ground was wet all round with her discharges, a stream of which was running through and from under the charpoy on which she was lying. There was a small well within 10 feet of her. Hawkers, tying up their bundles for market, might easily do so on this polluted ground, not to speak of the danger from the flies which swarmed around the place.

Speaking of flies carrying the cholera infection, when the first case in the garrison happened in July, 1894, I was on duty, and went immediately to the barracks from which the man had been brought. There I saw where he had vomited on the floor and on the way to the latrine, and the spots were still damp and covered with flies. Flies also swarm over the men's food, and I am sure sometimes carry the poison.

Reflections made since, in the light of after inquiry and recent knowledge.—It must be remembered that at the time this epidemic occurred and the previous notes were written the greatest confidence was placed in filters, especially of the Macnamara pattern, and we were always taught to consider that water passed through them was purified and improved for drinking purposes, so much so that whenever water was ordered to be boiled it was always passed through the filters afterwards. Men used to be warned against drinking

unfiltered water, and special orderlies were employed in seeing that special bhisties filled the filters with special mussacks, and drew the water only from special wells (*i.e.*, those provided with filter beds).

What a shock it was when, almost simultaneously by Mr. Hankin in India, and Drs. Sims Woodhead and Cartwright Wood in England, all the filters and filtering materials in common use were found to be not only useless for purifying from disease germs, but, still worse, the favourite breeding grounds of all the poisonous microbes in Nature. The Commission which enquired into the causes of this epidemic came to the conclusion that the cholera poison first got into the filter beds attached to the wells used for the supply of drinking water to the 1st East Lancashire Regiment; from there it got into the Macnamara filters, and there multiplied and infected the pure water which was afterwards passed through them. As Mr. Hankin has suggested, this action of filters may perhaps explain how it is that cholera in the past has always visited British troops much more severely than the native army. Both have drawn their supplies mainly from similar sources. In the case of the British the water was filtered, but not in that of the native.

The uselessness of the examination of water, as carried out by the Chemical Cabinet, will now be more apparent than ever, it being found that water, apparently pure by the ordinary tests, may contain the cholera or enteric microbe. It is therefore clear that nothing but a bacteriological examination should be trusted, and full means of making bacteriological examinations should be provided at the headquarters of every district. Medical officers should be encouraged, and given every facility, to qualify themselves; and one, duly qualified, should be appointed to each district.

At Kokrail I first suspected the well, which was situated in the middle of the original camp, and round which the ground had been freely polluted with cholera discharges during the first two days we were there. I therefore had it closed as soon as possible. I then reflected that all the native followers, mule drivers, camel drivers, &c., who were more numerous than the soldiers, had been using this well too, and yet had not had a single case of cholera among them. I next suspected the aërated waters, supplied from the East Lancashire factory in barracks, and which I had strongly recommended the men to drink instead of water. But, I must confess, I never suspected the filters, through which, even the small amount of water which it was possible to boil, owing to the tremendous downpour, was religiously passed; as was also done with that received from the Lucknow municipal supply by carts, after the well in camp was closed on the 4th August. The weak link in the chain of evidence for the truth of the filter theory is, that the epidemic decreased immediately after the water supply was changed, even though it was still passed through the same filters, and it also decreased simultaneously in the neighbouring city and district. If the filters were breeding the microbes why did they not continue to do so?

When men go into cholera camp, they ought to march out to a camp already pitched. All the hospital establishment should be drawn from enlisted men of the Native Army Hospital Corps, and temporary servants only taken on to fill vacancies in the station hospital. No filters should be taken, and all water boiled if possible. (The weather was so bad at Kokrail it was at first impossible to boil anything.) A commissioned officer of the Commissariat Department should be attached to the camp, and should remain on the spot to see that everything required is promptly obtained. At Kokrail there was no officer present, but one sergeant only for both camp and hospital, and there was great difficulty and delay in obtaining what was urgently required for the unfortunate men. Thus it took three days to obtain dry bedding from Lucknow, and everything else in proportion. There ought to be as little officialism and "red tape" as possible. While at Kokrail the chief commissariat officer, for instance, said he could only attend to requisitions from the camp hospital when they had been signed by the medical officer in charge of the station hospital.

The old idea of making soldiers forget that cholera is about, and raising their spirits by encouraging amusements, should be discarded, while the nature and means of prevention of cholera and the dangers of food and drink con-

tamination should be clearly explained to them. All possible sources of the disease should be pointed out, and advice given to them how best to avoid it.

All cookhouse, milk, and water orderlies, and all connected with supply, should be specially warned of their enormous responsibility when cholera or enteric fever is prevalent. I took some trouble to do this during a recent outbreak of enteric fever in the Essex Regiment. It seemed to arouse the interest of all concerned, and, I believe, with good effect; the men seeing the reasons for the sanitary precautions recommended gave intelligent assistance in trying to trace the source of the disease.

In the case of the epidemic in the 1st Battalion East Lancashire Regiment in 1894, Mr. Haffkine's inoculations, performed 15 months previously, did not seem to have any appreciable results, the figures being :—

Present Uninoculated.	Cases.	Deaths.
640	120	79

Present Inoculated.	Cases.	Deaths.
133	18	13

Or 5 per cent. fewer attacks and 2·5 per cent. fewer deaths. Mr. Haffkine attributes the failure to two causes. 1st, the length of time between the inoculations and the incidence of cholera. 2nd, the small doses of the virus he introduced.

As regards the first: if immunity does not last for 15 months inoculation is of doubtful utility.

As regards the 2nd: I know that a large number were very ill after the operation for periods varying from two days to a week.

If, for the sake of immunity, one would have to undergo inoculations at short periods, and to endure the unpleasant consequences of the virus in large doses, as would appear to be necessary from a study of the above, the benefit to be derived appears at least doubtful.

APPENDIX No. VII.

REPORT OF A CASE OF COMPOUND COMMINUTED FRACTURE OF SKULL, FRACTURE OF RIBS, AND OTHER INJURIES, ENDING IN RECOVERY.

By Surgeon-Major J. G. Mac Neece, Army Medical Staff.

The following case is a good example of the necessity for early exploration in injuries to the cranium; and the recovery of a patient with such severe injuries to skull, brain, and body is a strong argument against non-interference or conservative surgery, and in favour of free incision through scalp to skull over portion of brain injured, as indicated by well known symptoms of cortical compression, *i.e.*, aphasia, paresis or paralysis of upper extremities, &c. Army surgeons should be specially interested in the fact that, in this case, the wound caused by the incision healed by first intention, under ordinary antiseptic precautions, and the lower lacerated portion healed almost as quickly, without a bad symptom.

Mr. P——, passenger on board a steamship, was brought to the Station Hospital, St. George's, Bermuda, about 1.45 p.m. on the 17th March 1896, by Surgeon Jeremy of H.M.S. "Rambler," there being no civil hospital in the town.

History.—Patient was sitting on the deck-house when the steamer collided with a ship at anchor in the harbour, her bowsprit striking the after-mast of the steamer, bringing it down; whether the patient was struck by the falling mast is unknown, but the supposition is (he was seen in the air by Surgeon Jeremy and others) that he was thrown up in the air by a tightened wire hawser, and fell on deck below, receiving muitiple injuries to head and body. Surgeon Jeremy found him a few minutes after the accident to be suffering from a contused lacerated wound, and large hæmatoma on left side of head, with symptoms of contusion and compression. He applied a first field dressing, and removed him to the Station Hospital.

Symptoms on Primary Examination.—2 p.m., 17th March. Patient apparently suffering from severe shock, moaning, unable to speak, though to a certain extent conscious; not able to move left arm, but able to use right arm a little; prehensile powers of both hands deficient, not able to hold pencil. Chest and spine contused; able to move lower limbs slightly; reflexes present. The pupils of the eyes acted to light; able to close and open eyelids as answer for Yes, No, to simple questions; not able to read.

Mouth, drooping of lower angle, left side, Bell's paralysis; unable to protrude tongue; swallowed a tea-spoonful of water with difficulty; distinguished coldness of ice.

Cranium, large egg-shaped tumour over left parietal eminence, with jagged wound at lower [redacted] blood was oozing, situate about 1¼ inches

above, and 1 inch posterior of left ear; this wound being large enough to allow insertion of little finger; about ½ inch above wound entrance, skull was felt fractured and depressed.

The exact measurements taken when wound had healed were, from convexity of concha to base of wound, 2 inches; total length of wound and incision 3 inches; a line let fall from apex of incision would strike convexity of concha, and let fall from base of wound would cut a line drawn at right angles from convexity, 1 inch posteriorly.

In consultation with Surgeon-Major Gubbin, A.M.S., and Surgeon Jeremy, R.N., to whom I have to express my thanks for their kind assistance, it was decided to make an exploratory incision over the seat of fracture to ascertain the amount of injury. Shaved hair off that side of head (in any future case I would shave whole head) washed head with carbolic acid lotion 1 in 30; made incision from wound upwards and forwards towards apex, about 2½ inches long, cutting through scalp, attollens aurem muscle, and its aponeurotic attachment, to occipito frontalis; while doing this it was seen that there was a bad fracture.

On gently retracting the scalp, I found a saucer-shaped comminuted fracture, with fissures running from it in three directions, namely, forwards to frontal, downwards to temporal, and backwards to occipital bones. Taking the incision as centre line, the piece of bone which had been felt on making the preliminary examination was lying to right side of line, with its upper edge pressing on the brain; on grasping it with the forceps, the bone was found entirely denuded of both external and internal periosteum (dura mater); it was therefore removed. On the left or frontal side of the line another piece of bone was found, triangular in shape, with apex depressed and pressing on brain; both the periosteum and dura mater had been torn off this except at apex; endeavoured to elevate this portion of bone with a view of leaving it *in situ*, but, failing, removed it.

The question of leaving these pieces of bone or portions of them as grafts arose in my mind, but against this proceeding were the facts that the dura mater was torn off with bleeding points, that the cortical portion of brain was severely injured, that the grafts might act as foreign bodies, and also the hope, that with both periosteums left, there might be some development of new bone.

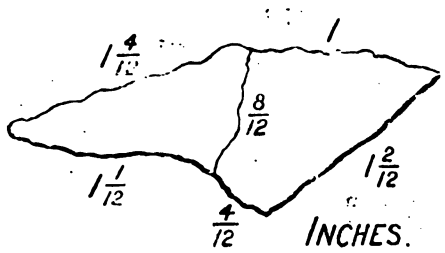
Washed out wound well with carbolic acid lotion, thus removing several small spiculæ, and twisted bleeding vessels; blood was oozing from dura mater, which had several small punctures in it, but no brain substance protruded. Put in three silk sutures in upper portion of wound (the incised portion) leaving lower lacerated end open for drainage; dusted it over with iodoform, and put on dressing of boracic wool.

After this operation, patient distinctly articulated, "Oh my head," and again lapsed into semi-unconsciousness. On making a closer examination of body, found left side of chest emphysematous, and fifth left rib fractured in axillary line; strapped left side of chest. The second right rib was also broken, chest severely crushed, and spine contused. Did not administer an anæsthetic, as patient had fallen into a semi-comatous condition before commencement of operation. Patient bore shock of operation well; at 8 p.m. was conscious and fairly comfortable; drew off urine with catheter, as he was unable to pass it. At 10 p.m. was sucking ice, and able to swallow a little Valentine's meat juice.

The symptoms indicated that the following brain centres were injured:—

Speech centre (aphasia) and Reil's island. Centre for upper extremities (paresis and inco-ordination of movements). Centre (motor) hypo-glossal nerve. Injury to 7th nerve (Bell's facial paralysis, left side), probably caused by fracture extending down through temporal bone.

The following rough sketch shows the situation of wound, and a full size drawing of bone removed.



Bone of skull (parietal) unusually thin.

The combined shape of portions of bone removed was like a half open fan, or half moon.

Measurements are $2\frac{4}{12}$ inch, wings $1\frac{1}{12}$ and $1\frac{2}{12}$ inch, diameter $\frac{10}{12}$ inch.

Left fragment, triangular; right, irregularly four-sided.

18th March.—Temperature 98° F. Pulse 120. Passed a restless night. Only disturbed dressings sufficiently to remove outer layer of wool, which was saturated by oozing; replaced it with fresh wool.

19th March.—Temperature normal, pulse 100. Passed a fairly good night. Unable to pass urine; drew it off by cathether. Removed dressings; upper portion of wound closed by first intention; little oozing at lower end; no fulness.

20th March.—Temperature last night 99·4, this morning normal; rise due to pleuritic effusion left side of chest in axillary line. Patient is able to protrude tongue a little, which is w[redacted] left side. Not able to

articulate; is both aphasic and partially amnesic; when given a pencil was unable to write, though he tried holding pencil with left hand, drawing lines like baby writing. Gets excited very easily and apparently does not want his people communicated with, or brought from States.

21st March.—Temperature normal, pulse 100. Passed a fair night, slept at intervals, pleurisy disappearing, heart sounds better; able to protrude tongue a little. Power of grasping with both hands improving, able to extend fingers of right hand, which were previously semiflexed.

22nd March.—Temperature normal, pulse 100. Complained much of headache by signs that it was throbbing; removed dressings; there was slight pulpiness at upper end of wound, which began to bleed, probably a small branch of temporal; hæmorrhage was easily controlled by pressure and pads, and the wound dressed as usual with antiseptic gauze and cotton. Able to grasp better with left hand; has more power of co-ordination with it, namely to grasp pencil, and write "Oswego," which indicates that speech centre is improving; also left-handed cerebration, not able to hold pencil with right fingers, though there is improvement.

23rd March.—No change; was put on mixture Pot. iodi. ʒ ii., pot. brom. ʒ ii., tinct. aurantii. ʒ ii., aquam ad ℥ viii. twice daily, morning and night.

24th March.—Temperature normal, pulse 90. Removed two lower sutures but not upper, though wound is closed, fearing hæmorrhage.

25th March.—Temperature normal, pulse 90, very irritable, constipated. Complains much of soreness of left side of neck and difficulty in swallowing, takes fluid nourishment.

26th March.—Temperature normal. Complained much of pain in neck, which was relieved by mustard plasters. Paralysis of left side of mouth, and partial of pharangeal muscles continues. There is still superficial emphysema in axillary line, and a marked pericardial friction sound, probably due to pleural effusion. Removed remaining suture; wound may be said to have healed by first intention with exception of lower jagged wound, which was left open to allow drainage. Have not tried him with pencil and paper since 22nd, but think memory of words is returning. Still constipated. Ordered calomel 5 grs.; to be followed by soap and hot water enema.

27th March.—Temperature normal, pulse good, 90. Wrote "Yes" with left hand in answer to written words. "You are better." Seemed greatly pleased.

28th March.—Temperature 97·8. Not so well this morning. By signs complains of feeling cold and of great pain in left side of chest. Heart sounds seem as if they were muffled in water, as if each beat caused a flop in fluid. Dressed head; the whole of wound has healed, except pin-hole opening at lower end, from which there was about a drop of discharge; some fulness and pulpiness under scalp over seat of injury, which may be due to coagulated blood beneath dura mater.

29th March.—Temperature normal, pulse good. Painted left side of chest with tinc. iodine, and then applied ung. hydrarg. spread on lint over heart area, and front left side of chest. Broke news to him that his wife was coming; rather excited.

30th March.—Better this morning. Said distinctly to nurse, "You go way, "want' speak to him," pointing to me.

1st April.—Patient progressing favourably. Continuing pot. iod. and pot. brom. and mild cathartics. Speech returning; heart sounds and pulse better, but there is a roughened pericardial friction murmur which may be due to collapse of left lung (percussion very resonant, very little air entering lung), or as stated before to pleuritic effusion consequent on injury by rib.

Wife and brother-in-law arrived last night; bore the excitement of seeing them, well.

2nd, 3rd, 4th, 5th April.—Going on favourably, but constipated.

6th April.—Bowels moved well and copiously; spoke a short sentence to me; remembers coming into harbour and events up to accident, but nothing of the accident or operation, and apparently not till second day, when he was moved into another ward. Still partly aphasic and probably amnesic; muscles of deglutition still partly paralysed.

11th April.—Moved to a private house; stood stretcher carriage well. Pulse 72. Pericardial friction sound has disappeared. Prehensile power of right hand nearly perfect. Speech improving. Vowels and labials easily pronounced, gutturals and dentals, especially the latter, with difficulty; able to read and understand newspaper, but not aloud; makes a hash of the longer words, forgetting the voice sound of individual letters. Aphasic amnesia. States that he thinks a great deal; is very nervous about his heart and recovery.

17th April.—Going on steadily to convalescence; over seat of injury, where bone was removed, and previously considerable bulging, there is now a depression; the effused blood and lymph have been absorbed.

19th April.—Able to pick up matches, &c., with forefinger and thumb right hand.

25th April.—States that when out walking this morning suddenly felt left chest expand, pain over heart disappeared, and he could breath easier. On examining left lung found that it had assumed its normal proportions and that air was entering freely. He is amnesic to this extent that when talking he may use a wrong word, as he cannot remember the right one, but he is aware of the lapse, and is educating himself in the speiling and pronunciation of words.

1st May.—Progressing favourably. In pronouncing P or B, he is liable to misplace them; also calls V, B, though aware of the fact.

11th May.—Speaks better, bungles over long words, such as unsuccessful; co-ordination of both hands perfect, able to button shirt, &c. Where bone was removed there is a depression about half an inch square; the angles are closing up, so that there is hopes of a shell of bone forming over opening.

14th May.—Sailed for New York. Strong bodily and mentally, but with scarcely complete co-ordination of moter and sensory centres of speech. A more satisfactory termination than I had dared hope for two months ago.

An extract from his city paper is appended:—

"18th May.—Mr. P. is in excellent health, and rapidly recovering from his severe accident. To-day Mr. P. was in his office for a time looking after business. He is still a little weak, however, but will be as good as new in a short time. He speaks in the highest terms of his treatment while on the Island."

APPENDIX No. VIII.

THE CAUSES, SYMPTOMS, AND TREATMENT OF EMPYEMA, WITH ILLUSTRATIVE CASES.

By Surgeon-Captain S. G. Allen, Army Medical Staff.

Empyema, or the collection of pus in the pleural cavity, has been chosen as the subject of this thesis, as it is a disease, or, more correctly speaking, a complication, which occurs with some frequency during the course of certain affections of the respiratory organs among young adults such as form the bulk of the soldiers serving with the colours. It is also occasionally to be met with after severe injuries of various parts of the body, such as those caused by gun-shot wounds, &c. It is a well-known clinical fact that a suppurative inflammation of the pleural membrane of similar kind occurs also frequently among children, but as regards its course and character when affecting this class of patient I do not intend to deal here.

I propose to divide this paper into two parts.

In Part I. a general review of the disease as seen in the adult will be taken, with an account of the causes which produce it, the symptoms to which it gives rise, and a description of the medical and surgical treatments appropriate.

Part II. will contain extracts from notes of certain cases of empyema which have recently come under my notice, with remarks on the symptoms, treatment, and other features of these cases to illustrate the subject matter of Part I.

Part I.

As already indicated, one must consider the affection in question as being a serious and important complication of some pre-existing malady rather than as a disease *per se*, as it will practically always be found that a patient who is the subject of an empyema has been first suffering from some other affection either of a medical or surgical character (it may be even of a part of the body distant from the affected pleural membrane), to which the appearance of the empyema can be traced.

Such is the generally accepted view, and it is one well borne out by clinical observation, and will be illustrated by the cases presently to be recorded. It has, however, been suggested that a simple serous pleurisy of itself never becomes empyæmic in character, so that, supposing during the course of any given cases of pleurisy the presence of pus in the pleural cavity is demonstrated, it means (according to this view) that there has been a suppurative inflammation of the pleura from the beginning, that the disease has been throughout of a different nature to that of an ordinary serous pleurisy. Of course there are many cases of pleurisy in which the fluid removed from the chest has at first been simply serous, and after one or more tappings has become purulent; these are presumed to be cases of septic infection due to the surgical interference.

It is impossible to absolutely disprove such a theory, but considering the comparative frequency with which one sees clear serous effusions becoming

transformed into pus (not only in the pleura, but elsewhere throughout the body) it is unreasonable to suppose, as regards the former, that it is due in all or even in most cases to the carelessness or ignorance of the surgeon in introducing a germ-laden needle to remove the fluid collection.

The causes are divisible into :—(1.) Traumatic ; (2.) Idiopathic.

(1.) Traumatic causes.—After any severe injury to the thorax an empyema may occur as a complication, and is to be particularly anticipated after a penetrating wound, especially if caused by the forcible entry of some foreign body, as after a gun-shot wound of the chest. Again, after injury to any part of the body, should the resulting wound become septic, empyema (generally double) is not an infrequent complication.

(2.) Idiopathic causes are by far the most common. Thus empyema may be the outcome of (i.) simple serous pleurisy (but it does not follow on dropsy of the pleura, the result of heart or kidney disease, as in such cases there is no existing pleural inflammation, and the fluid is merely due to transudation) ; (ii.) it may appear also after acute rheumatism, or other fevers, especially in tuberculous subjects ; (iii.) it may be due to the extension of inflammation from a pneumonic lung or phthisical cavity ; or, lastly (iv.), an abscess arising in the liver or neck, or from a carious rib may find its way into the pleura and there set up a purulent inflammation.

Two principal varieties of empyema are met with in practice, and are important from a diagnostic and prognostic point of view.

In the first and more common form the pus is free in the pleural cavity, and collects from below upwards.

In the second or localised variety an adhesive inflammation takes place between the visceral and parietal layers of the pleura, but leaving some part where the inflammation takes on a suppurative character, so that the resulting pus is confined and circumscribed by freshly formed lymph adhesions (Case VI. in Part II. is an illustration of this variety). The interest of this form of the disease lies mostly in its correct diagnosis, as a limited collection of pus in the pleural cavity is not unlikely to be overlooked. This will be again referred to in commenting on Case VI. With a correct diagnosis and suitable treatment, however, the prognosis is more favourable than when the pus is free in the pleural cavity.

As regards the symptoms commonly met with in this disease, they are similar in kind to those found in certain other affections of the respiratory organs, as ordinary pleurisy with effusion, tubercular phthisis, &c., viz., impeded respiration, dulness on percussion, loss of tactile and vocal fremitus, displacement of organs, cough, loss of flesh, night sweats, high and irregular pyrexia.

These various physical signs and symptoms will be considered in more detail with the cases ; but it may be said here that the diagnosis has to be made by a consideration of the case as a whole, there being (as already indicated) nothing diagnostic of the presence of an empyema in any of these symptoms. For example, in certain cases of simple pleurisy the pyrexia may be very high and irregular, and the hectic temperature, which is characteristic of imprisoned pus, is not always a constant feature of empyema. The alteration in the physical signs, due to a collection of fluid in the cavity of the pleura, is alike in both forms of pleurisy. Some observers, it is true, have described an œdematous condition of the chest walls as occurring when pus is present, but this is certainly not constantly found and cannot be relied upon.

As regards others of the symptoms, they are exactly similar to those met with in acute tuberculosis affecting the lungs. Indeed, the onset of empyema is more likely, I think, to be mistaken for this fatal disease than any other. Given a case of bronchitis and broncho-pneumonia, followed by empyema, which is common enough, the pus collecting slowly and not giving rise to any physical signs beyond what one finds in the slight secondary pleuritic effusion, which is a common feature in any inflammatory affection of the lung near its pleural surface, a condition which does not call for any surgical interference, and which is to some extent probably beneficial. The symptoms in such a case closely resemble those found in tubercular phthisis. Thus you will have the cough, loss of flesh, night sweats, hectic temperature, clubbed fingers,

diarrhœa, &c.; and on physical examination will be found the signs of bronchial inflammation followed by evidence of consolidation of portions of the lung and the presence of a certain amount of effusion, which would naturally be regarded as secondary to the lung condition and of minor importance. Examination of the sputum for tubercle bacilli should always be made, but sometimes they are few and far between and may be overlooked, so that their absence will not necessarily disprove the presence of tubercle. Again, empyema may be secondary to tubercle of the lung, and although such a condition is almost certainly fatal, the complication must be diagnosed and dealt with in order to give the patient a chance of recovery.

The symptoms in these cases are still more misleading when the pus is small in quantity and is localised; even the aspirating needle, when used, may fail to give that aid to the surgeon which the symptoms themselves do not afford. Such localised cases are sometimes seen complicating croupous pneumonia, and are very likely to be overlooked. A serious matter, as the presence of such an abscess, undealt with, in the vicinity of the diseased lung, increases materially the likelihood of a fatal result.

As regards the prognosis, the following general rules may be laid down :—

(1.) The earlier the existence of pus is diagnosed, and steps taken to establish efficient drainage, the better the prognosis, not only as regards life, but also as to the prospect of a perfect cure.

(2.) As a rule the more the pus is localised the better the chance of the patient. As already stated, however, there are a certain number of cases in which, owing to the very localisation of the pus, it escapes detection, so that this limitation may be an important factor in producing a fatal result.

(3.) The more extensive the empyema the less likely is a perfect recovery. The presence of a double empyema makes the prognosis more than doubly grave; indeed such a condition is almost certainly fatal.

(4.) Empyema following on tubercular disease is a fatal complication. Also when it follows on septic wounds, abscess of liver, or about the neck, the outlook is very unpromising.

(5.) Apart from tubercule or the existence of septicæmia, the general health of the patient must be taken into account in the prognosis. It must be remembered, however, that empyema, being a complication of pre-existing disease, its very occurrence argues a defective condition of general health.

(6.) In certain cases the pus has a tendency to make its way out of the pleural cavity, either by pointing at some part of the chest walls, or else by bursting into the lung, or into the abdominal cavity. In the first instance a good result may be obtained if free drainage is established; in the latter an unsatisfactory result is generally to be anticipated.

With respect to the therapeutical part of the treatment, it will for the most part be that of the original disease. In the earlier stages much help in the relief of cough, pain, &c., and support to heart and nervous system, may be obtained by the use of the following drugs :—Ipecacuhana, carbonate of ammonia, morphia, digitalis, strychnia and quinine. After operation cod-liver oil should be given, and will be of much use during convalescence. Once the presence of distinctly purulent fluid in the pleural cavity is established, however, it is worse than useless to trust to natural absorption taking place under medical treatment, as occurs in the majority of cases of simple serous effusion; steps must therefore be taken to remove it. It is usual and desirable to make use of the aspirator at first for this purpose, and in some cases of limited empyemata a cure may thus be effected. In the great majority of these cases among adults simple aspiration gives, however, only temporary relief; and the method of aspiration is so simple, safe, and for the time being efficient, there is danger I think of losing time by repeatedly removing the pus in this way, when it is manifest that a cure cannot be obtained without taking more thorough measures to drain the pleural cavity. Drainage of the pleural cavity is then essential to the cure of this disease, and in so doing one follows out the rule of treatment which consists in giving free exit under antiseptic precautions to all purulent collections. In the case under consideration it is especially necessary for three reasons :—(1.) To put an end to the absorption of pus into the circulation and the consequent hectic; (2.) To relieve pressure effects on

lungs and heart; (3.) To give the pleural surfaces a chance of coming again into contact and becoming united. It remains to consider the details of the operation necessary to effect this purpose, which will be discussed under the following heads:—(*a.*) Nature of operation, (*b.*) Position of the incision and other details, (*c.*) After treatment.

(*a.*) The operation for effecting drainage of the pleural cavity may be done either by simply making an incision through a suitable intercostal space, or by cutting down upon a selected rib, clearing this of periosteum for 1 or 1½ inches, and then removing the denuded portion of bone by forceps. In either case a full-sized drainage tube is to be inserted. The question whether the resection of rib is necessary or advisable has been often discussed. Some maintain that it is not required for drainage and adds unnecessary severity to the operation, and cannot possibly assist the falling in of the ribs by which means (in part) a cure is effected.

As regards the latter, it is true that the removal of a small portion of a rib can have no effect in causing the affected side to fall in, but for other reasons it is a useful amplification of the simple incision as—Firstly, you obtain a freer opening through which not only pus but large flakes of purulent lymph (if present) can escape, and through which also you can make a more thorough digital examination of the pleural cavity, if deemed advisable. Secondly, it also enables a larger-sized drainage tube to be used, and it can be more easily removed and replaced when necessary. The only cases in which resection of the rib might not be advisable are those in which the pus has become septic; here a bone section is best avoided.

(*b.*) As regards the position of the incision, in those in which the pus "points," that spot should certainly be selected. In other cases there is a difference of opinion as to the best situation. Mr. Marshall recommends the 5th interspace just external to the cartilage. It is generally safe, however, I think, to select a spot as low down as possible, and situated at the lateral or posterior aspect of the thorax, such as the 7th interspace in the axillary line, or the 8th or 9th space slightly external to the inferior angle of the scapula.

In selecting a low position for the opening the operator must be careful not to go below the limits of the pleura, which are variable at the back of the thorax, and he must also remember that the lower part of the visceral and parietal pleuræ may become adherent by inflammation, while the upper portion of the cavity is full of pus.

The use of a carbolized grooved needle, before making the incision, will prevent the occurrence of any such mistake.

Details of operations: (i.) For simple incision; (ii.) Incision with resection of rib.

(i.) The patient should be brought near the edge of the operating table and be kept as much as possible on his back to avoid hampering the sound lung by the gravitation of the fluid. Chloroform had better be used to produce anæsthesia as being less irritating to the bronchial mucous membrane than ether. The parts should be first well washed and then bathed with carbolic solution (1 : 20). The instruments, hands of operator and assistants, must also be disinfected. A suitable intercostal space having been selected in accordance with the above rules, the arm of that side is raised to a right angle. This will tend to draw up the skin somewhat so the surgeon must make his incision proportionately above the selected space, otherwise, when the arm is replaced, the opening will be valved. The skin and fasciæ having then been divided for the space of about 3 inches, a small opening is made through the muscles and parietal pleura with the knife, through this a pair of closed dressing forceps is inserted and then opened as widely as possible to make the deep incision equal in length to that in the skin.

If when using the knife it is kept directed towards the upper border of the rib which bounds the selected intercostal space below, and the deep wound is enlarged by the use of the dressing forceps, there is no danger of wounding the intercostal artery. Except for such an accident the bleeding is trifling. After the pus has escaped the finger should be introduced to explore the cavity of the pleura to ascertain whether there are any flakes of lymph preventing the escape of more pus, or any other peculiarities of the case.

(ii.) In the case of the operation with resection of the rib similar preliminary steps are to be taken. The operator then makes an incision along the selected rib for about 3 inches, going through all the soft structures and the periosteum; a short vertical incision from the centre of this will give more room if required. The periosteum is now cleared from the rib for about 1½ inches. This will be effected quite easily owing to the thickening of this membrane by the preceding inflammation. The elevator is then pushed behind the denuded portion of the bone, and from 1 inch to 1½ inches is removed by means of the bone forceps. If the parietal pleura has not already been divided this is done now; the pus allowed to escape, and the digital exploration of the cavity carried out. Should the intercostal artery be accidentally wounded firm pressure must be made by the finger. If this does not suffice to stop the bleeding the artery must be secured by ligature. Such an accident will not, however, occur if the bone is properly denuded of periosteum before being divided.

(c.) After treatment: on completion of the operation the question arises as to whether it is advisable to wash out the pleural cavity with some antiseptic solution. In most cases, if a free opening is made for the escape of pus, it will not be necessary. If, however, the pus is at all offensive it becomes a necessary step in the treatment. A weak iodine solution (about the colour of sherry) or a solution of hydrarg. perchlor. (1 : 5000) are the best to use. In doing this, care must be taken that no distension of the cavity takes place, otherwise dangerous syncope may be induced; an irrigator connected with a gum elastic catheter is the best instrument to use for this purpose, as the catheter, when introduced through the operation wound, leaves ample room for the fluid to escape, and so avoids the risk of distension. A full-sized drainage tube, long enough to reach to the deepest part of the cavity, must always be inserted after the operation. To prevent the risk of its slipping in, a flanged tube should be made by fastening the split external end of the tube to a piece of oil silk or caoutchouc about 2 inches square.

As regards the dressings, the wound margin should be freely dusted with iodoform, and the whole of the affected side covered with a thick layer of sal alembroth wool, which should be securely fixed by means of antiseptic gauze bandages.

If the empyema is a large one the wound will require dressing twice daily for the first week or 10 days. After that there is, generally speaking, so great a diminution in the amount of the discharge that the dressing only require changing once in the 24 hours. At each dressing the drainage tube should be removed, cleaned in some antiseptic fluid, and replaced. Should the pus at any time become offensive the pleural cavity must be carefully washed out at each dressing.

Part II.

In this part will be given extracts from the notes of six cases, the first five illustrating "general empyema" and the sixth the localised variety of the disease.

Case No I.—Gunner J. B., æt. $20\frac{3}{12}$, was admitted into hospital 23rd March 1892 with symptoms of acute bronchitis. He stated that he had been suffering from a cough for some days prior to admission, but could not assign any definite cause for it. His previous health had been good on the whole, but he had had one admission before for bronchitis. There was no history of tubercular disease in his family.

By the 27th March, in addition to the bronchitic sounds, dulness was present at the right base behind, where also subcrepitant râles were heard. His temperature was elevated (*v. chart*); pulse 100 p.m. and strong, and the respirations 28 p.m. A hectic flush was present over malar bones. Next day (28th) tubular breathing was heard at the right apex, and there was increased vocal resonance over dull area at this base, pointing to lung consolidation here. Moist râles could be heard at both bases. On the 29th March the heart impulse was found to be diffused, and was visible in the 3rd, 4th, and 5th left intercostal spaces. Bronchitic sounds were still audible in both lungs,

but the dulness had extended half way up the right lung behind, and over this area tubular breath sounds were audible.

On 1st April the sputum was noted as being copious and muco-purulent, and the pyrexia of a remittent type. The physical signs were described as follows:—"The vocal resonance and fremitus, which have been more marked "than normal over the dull area at right back have much diminished; tubular "breathing can also be heard now over the whole of the right back. Over the "left lung behind harsh rhonchi are audible; in front the breath sounds are "puerile."

About this time the patient began to lose flesh rapidly, and to suffer from severe night sweats. The case was considered to be one of acute tuberculosis of the lungs, with bronchitis and broncho-pneumonia, the result of the tubercular deposit, and was so diagnosed. The prognosis was regarded as extremely bad.

No material change occurred up to 15th April, on which date tubular breath sounds were heard over the left front also, in place of the puerile breathing which had previously been present.

On April 21st the following physical signs were noted:—

Heart.—Apex displaced just beyond nipple line.

Left Lung.—Front and side:—Well marked tubular breathing and crepitations.
Back:—Bronchitic sounds.

Right Lung.—Front and side:—Clear resonance at this front, with tubular breathing on auscultation. Dulness and complete loss of vocal resonance and fremitus below axilla.
Back:—Dulness at base and apex; fremitus absent. tubular breath sounds still heard over centre.

Next day (22nd April) vocal fremitus could again be made out over right back and side, and a few days later a friction rub was heard in the right axillary region. The heart apex, however, continued to be a little displaced in an outward direction.

The cough, sweating, and loss of flesh continued, but the condition of the lungs remained unchanged until May 4th, when the signs of fluid effusion into the right pleural cavity became much increased, and by the 7th of the month were so marked that the heart apex was displaced well beyond the nipple line, the right side of the thorax distinctly bulged, and entry of air into this lung was obstructed.

The aspirator was used to relieve the pressure effects of the fluid, the needle being introduced into the 7th space in the axillary line, and about 90 ozs. of greenish-looking pus removed, with relief to the patient. The fact that the fluid removed from the pleural cavity was pus cleared up the diagnosis to a great extent, but it was still thought that tubercular disease might be present. The sputum was stained and examined microscopically for tubercle bacilli; none was found. On the next day but one (May 10th) the physical signs showed that the pus had again collected, so it was determined to drain the pleural cavity.

Operation.—One inch of the 9th rib on the right side was removed in the mid-axillary line by the sub-periosteal method, and the pleural cavity was opened. The operation was performed without any difficulty, and a free escape of pus ensued. The cavity of the pleura was then washed out with a 1:5000 solution of hydrarg. perchlor., and a full-sized drainage tube inserted. Large antiseptic dressings were applied.

At this time he was in a very critical state, much wasted and debilitated. The good effect of the operation was soon manifest, however, by the diminution in the cough and the night sweating. The discharge was nevertheless very profuse, and he had symptoms of thrombosis of some of the deep veins of the left leg, so that the effect on the temperature was not at first as great as it would otherwise have been.

On the 19th May, nine days after operation, his condition was as follows:—

"Temperature normal to-day for the first time for several weeks. Respirations, 26; pulse, 108 p m., but fairly full and strong.

Remarks on Case I.—The first noteworthy feature of this case is the length of time he has been under treatment, extending from the 23rd March 1892 up to December 1894. Before considering the probable causes of this prolonged illness it should be noted that the process of convalescence after empyema often extends over many months. This can be no matter for surprise when it is considered that to effect a complete cure the compressed lung must re-expand and the chest walls fall in sufficiently to allow the two layers of the pleura to become united; a change necessarily requiring time in adults in whom the chest walls are less elastic than in childhood.

In the case under consideration the delay in the cure is probably attributable to three causes:—Firstly.—To the large size of the empyema and consequent severe compression of the lung. Secondly.—To the fact that there was well-marked bronchitis and broncho-pneumonia in both lungs for many weeks, which further handicapped these organs. Thirdly.—To the mistake made in the earlier stages of the case as to the disease, so that surgical interference was not undertaken as early in the illness as it would otherwise have been.

When discussing empyema in Part I. the advantage of an early diagnosis was insisted upon, and the likelihood of being misled by the resemblance of commencing empyema to acute pulmonary tuberculosis. Case I. is a good illustration of this, as this patient presented in the earlier part of his illness as perfect a clinical picture of acute tubercular phthisis as could well be imagined.

By the 21st April 1892 it was of course obvious from the change in the physical signs that there was some fluid in the right pleural cavity. This was, however, regarded at the time as serous effusion secondary to the tubercle of lung, and the fact that the signs of effusion had diminished by the next day lent further colour to this idea. Early in the following month when the fluid returned it increased so rapidly that the aspirator had to be used to relieve pressure effects; this led to the discovery of the empyema.

In all cases presenting the clinical features of acute tubercular phthisis it will be well, I think (should signs of even slight effusion appear), to make a systematic exploration of the pleural cavity with an aseptic grooved needle, as it will enable an empyema to be detected and dealt with in an early stage, and that without any appreciable risk to the patient.

His temperature during the early part of his illness was of a somewhat hectic type. After operation the range of temperature became lower, but owing to existing complications, such as phlebitis and bronchitis, it remained above normal for some weeks longer.

The two operations performed on this patient were done with very different objects:—(1.) The first was simply to effect thorough drainage of the pleural cavity the resection of the rib being merely with the object of allowing free escape to the pus and purulent lymph, and so giving the lung a chance of expanding. Although the establishment of free drainage did not in this case produce the full benefit expected, it certainly saved his life at the time and caused a great improvement in his general health. (2.) The lung having failed to expand and the chest walls to fall in sufficiently to produce obliteration of the pleural cavity, the second operation was undertaken to diminish the actual circumference of the thorax on the diseased side by the removal of portions of several contiguous ribs, and so directly to assist the efforts of nature to effect a cure.

The measurements and description of the state of the thorax some months after the second operation, which are given, show that this object has been attained to a considerable extent; and the latest reports of the case make it probable that a cure will be effected before long without further surgical interference.

Case No. II.—Driver W. B., æt. 19. Admitted into hospital 7th March 1893 with pain at right side of chest, cough, and high fever (104° F.). A pleuritic rub was audible just below the right nipple. On the ninth the physical signs showed the existence of pneumonic consolidation involving the

lower half of the right lung. There was some fall of temperature and improvement in his condition by the 16th. On the 19th, however, his temperature again rose (*v.* chart); his pulse was 116, and his respirations 44 per minute. He began to suffer also from night sweats. The physical signs of pleuro-pneumonia in the right lung remained unchanged. The case continued much the same from day to day with elevated temperature, rapid respirations, and rusty expectoration. He began to lose flesh, and the night sweating weakened him seriously. These symptoms, together with hectic, crepitation, dulness, and increased tactile and vocal resonance at the right base behind without any sign of a crisis, led to the case being regarded as one of phthisis following on an attack of croupous pneumonia which had not cleared up. There was no bulging of the chest walls at this time, or other symptom of fluid collection within the pleural cavity. By the 2nd April 1893, in addition to the physical signs previously existing, harsh breathing with a prolonged expiratory murmur was audible all over the right lung. The fever continued to be of a hectic type; an unfavourable prognosis was made, and the diagnosis of pneumonic phthisis was considered to be practically certain. A few days later (8th), however, although the ordinary signs of fluid collection were not present, it was suggested that as a precautionary measure a needle should be introduced. This was accordingly done at the 6th intercostal space, post axillary line on the right side, and pus was unexpectedly obtained. The aspirator then was used, and some 6 ozs. removed. On the 12th vocal resonance was present at the right base. Hectic continued, however, and by the 18th of the month, as he was not improving, drainage of the pleural cavity was determined upon.

Operation.—One inch and a half of the 7th rib was removed by the subperiosteal method in the mid axillary line, and a free escape of pus ensued. A full-sized drainage tube was inserted. No irrigation was employed, and his temperature fell to subnormal by the evening.

On the 30th April the discharge was undiminished. The pleural cavity was now washed out daily with a weak solution of acid carbolic and iodoform dusted in. By the 6th May the discharge had much diminished; he had gained flesh, and was able to be taken out of doors. On the 14th the temperature was noted as having been normal for a week; the tube was shortened.

23rd May.—No pain, cough, or rise of temperature; slight discharge from an open sinus; appetite good, and is gaining flesh. 3rd June.—Drainage tube shortened 2 in. From this date he continued to make a steady recovery, and he was sent out of hospital on two months' sick furlough on 22nd July 1893, being in good general health, and the wound having completely healed.

Condition of Thorax on leaving Hospital.—The lung appeared to have expanded fairly well, and breath sounds were audible, although weak. There was flattening of the right side, but not to any great extent. The percussion note was duller than normal over the whole of the right back and side. This was probably due to thickened pleura.

Remarks on Case II.—In this case the empyema was secondary to an attack of pleuro-pneumonia affecting the lower half of the right lung. His condition was more favourable to recovery than that of Case I., as his left lung continued healthy throughout, and the empyema was of a much more limited character.

The peculiarity and interest of the case, however, lies chiefly in the latency of the empyema, as the ordinary physical signs of pleuritic effusion were absent, or at any rate obscured, by those of inflammation of the lung tissue, so that the diagnosis of pneumonic phthisis in view of the clinical symptoms present was a very natural one.

This is another well-marked illustration of the advantage that may be gained by exploration of the pleural cavity in cases of lung affections with hectic, night sweats, &c., although the ordinary signs of fluid are absent or but slightly marked. The little operation was done here merely as a precautionary measure, the marked likeness sometimes existing between early empyema and pulmonary phthisis having been considered, and no doubt the satisfactory result was attributable in great part to the fact of the empyema having been detected and dealt with in an early stage of its existence.

On referring to the chart attached, the temperature will be seen to have been of a hectic type, and the effect of the operation on the temperature is

noticeable. A well-marked fall of temperature after operation in these cases is a good omen as regards the result.

The site of the operation wound was in the mid axillary line at the level of the 7th rib, a position from which good drainage can generally be obtained. The patient began to improve immediately that free drainage was established, and he recovered with very little deformity. Antiseptic irrigation was used during a part of the after treatment, but it is doubtful whether it hastened the cure, for (as stated in Part I.), if free drainage is established, irrigation does not appear to be called for, except when the pus has a tendency to become offensive.

Case No. III.—Boy, R., æt. 16. Admitted into hospital 6th May 1893 with temperature 103° F. and complaining of pain in his left side. Nothing definite could be made out on physical examination of the chest. Next morning his temperature was still high (*v.* chart), his pulse was 112, and his respirations were 48 per minute, and fine crepitation with distant tubular breathing could now be heard over the 6th, 7th, and 8th spaces in the left axillary region. He had also developed a slight cough with rusty expectoration. His temperature continued high and his pulse rapid, and by the 11th inst. crepitations were found present over the whole of the left base.

These symptoms pointing to pneumonia of the left lung persisted. On the 23rd of the month it was first noted that the inflammation was complicated by effusion, there being dulness all over the left back with loss of vocal and tactile fremitus. The respiratory sounds, however, were still audible over this region, so that the amount of effusion was not regarded as being great.

The case continued from day to day with some improvement in the range of temperature and but little change in the physical signs. It was considered to be a case of croupous pneumonia with secondary pleuritic effusion in which no crisis had occurred and which had a tendency to become chronic; and was so diagnosed. By the 10th July 1893, however, as the fluid showed no sign of becoming absorbed, and he was evidently losing ground, he was aspirated and the existence of pus was discovered. About 8 ozs. were withdrawn and the temperature fell at once.

Operation.—A fortnight afterwards, as the pus had evidently again collected, he was placed under chloroform, and 1 in. of the 8th rib on the left side was resected near its angle, and a large drainage tube inserted.

He made a good recovery. The temperature never rose again after the operation, the discharge was moderate and decreased steadily, so that by the end of August scarcely any remained, and there was only a small sinus at the site of the operation wound. On the 12th September the drainage tube was left off altogether. The breath sounds and chest resonance were noted as being clear and the lung was in contact with the chest. Early in October he was discharged from hospital to go on sick furlough, the wound being quite found.

Remarks on Case III.—Here, as in Case II., there appears to have been an attack of pleuro-pneumonia, but affecting the left lung. Unlike the former case, however, the signs of pleuritic effusion were well marked, but the presence of pus was not suspected until the failure of natural absorption led to the use of the aspirator. In spite of the delay in operating the result of the case was satisfactory, due chiefly, I think, to (1) the empyema having remained of small size, and (2) to the absence of any disease in the right lung.

As in Cases I. and II., a portion of the rib was resected, in this instance the 8th rib near its angle being chosen, good drainage was obtained, and the good effect of the operation on the temperature was very marked.

Case No. IV.—Gunner G. H., æt. 19, admitted into hospital 15th January 1894 complaining of acute pain in the left side. He had a cough with muco-purulent expectoration. The temperature was elevated (*v.* chart), the respirations were 40, and the pulse 112 per minute. The following physical signs were found:—Dulness over the whole of the left lung with absence of breath sounds and loss of vocal fremitus, *i.e.*, effusion, though pain of a pleuritic character was present. He was put under treatment, counter-irritation being applied to the thorax to promote absorption of the fluid. The symptoms and physical signs continued unchanged up to the 21st January, but on the day following a marked increase in the difficulty of breathing was noted, and the

heart apex was found to have become displaced towards the right border of the sternum, indicating a considerable increase in the fluid. In consequence of this he was aspirated and some 40 ozs. of dark coloured flaky serum were removed, which gave some relief. Next day, however, there was still marked dulness over the left side, and the apex beat was further displaced towards the right, being now found near the right nipple. He was aspirated again and 30 ozs. of dirty-looking serum withdrawn.

By the 26th January the fluid had again collected in sufficient quantity as to seriously interfere with the heart and respiration. The pulse at this time was 140 per minute and weak; and the respiration very shallow and hurried. There was slight cough without expectoration, and his tongue was dry and brown. The aspirator was again used and 50 oz. of serum similar to the above removed. This gave very marked relief.

On the 28th January it was noted that the left thorax was resonant on percussion and that there was no pain. During the next 10 days the fluid collected again, but much more gradually, so that he did not suffer from dyspnœa, his temperature was normal, and no further aspiration was considered necessary at the time. He was kept on medical treatment with counter-irritation to the chest wall.

By March 1st, however, the displacement of the heart and difficulty of breathing were again present, 55 ozs. of fluid were removed which was now distinctly purulent in character. This change in the effusion made a further operation essential.

Operation.—On the 3rd March the patient was placed under chloroform, and about 1 inch of the 8th rib was resected sub-periosteally in the anterior axillary line. The pleural cavity was not irrigated, a large drainage tube was inserted and the side was covered with antiseptic dressings.

On the following day his temperature was normal and he had had a good night. The discharge was healthy but profuse, necessitating dressing him twice daily. On the 6th March his temperature was still normal, and breath sounds were audible at the upper part of the left lung. The discharge rapidly decreased in amount, so that at the end of the first week after the operation he only needed dressing once daily. From this date he made a rapid recovery, so that by the 17th March he was out of bed wearing a small drainage tube. By the 10th of the following month the tube was discontinued, and a few days later it was noted that the wound had completely closed. Early in May he left hospital on sick furlough.

Condition of Thorax Five Months after the Operation.—On inspection of the chest a sound cicatrix is seen situated over the 7th intercostal space on the left side; its direction being transverse to the long axis of the body, and measuring 4½ inches. The chest wall at this spot is slightly flattened. Both sides of chest move fairly well in respiration. On measurement of the circumference of the chest below the nipple after a normal expiration the left side was found to be 16 inches and the right 16½ inches. No spinal curvature was present. On percussion and auscultation good resonance, tactile and vocal fremitus, and clear breath sounds are obtainable all over the left lung, except just over the area of the operation wound, where the breath sounds, percussion note, and fremitus are diminished as compared with the other side. The right lung and heart are quite healthy.

Remarks on Case IV.—In Part I. of this paper allusion was made to the fact that it has been held by some that effusion into the pleural cavity never changes from serum into pus except through infection from without. *Case IV.* appears to me to be an illustration of the contrary, as it is evident that the effused fluid was at first simply serous, and during the course of the illness gradually became purulent. There can be no reason to suppose that the aspirations which were necessary had any influence in producing this change, as from the somewhat dirty and flaky appearance of the fluid obtained at the first aspiration it was evident that the first step in the conversion of the serous into a purulent effusion had already taken place.

So long as the fluid was not distinctly purulent it was hoped that aspiration plus medical treatment might effect a cure. When the more serious condition of empyema appeared, the pleural cavity was drained with the best results;

a free escape for the pus being obtained by the resection of a portion of the 8th rib in the anterior axillary line on the left side.

It is remarkable that at the time of the operation when the left side of the chest was full of pus the temperature was sub-normal. It remained at a low level for a week after the operation, subsequently there were one or two rises of short duration before the convalescence was complete.

In spite of the compression to which the affected lung must have been subjected it re-expanded well, so that very little deformity resulted. The want of clearness in the percussion note over the operation area is due no doubt to thickening of the pleura at this spot.

Case No. V.—Gunner J. M., æt. 20.—Admitted into hospital 30th January 1894 with febrile symptoms, pains all over the body, and deep-seated pain in the back. Within the next two days dulness was found at the base of the left lung, where also tubular breath sounds were audible. There was no expectoration. Temperature was high, 103·4° F. (*v.* chart), pulse 112, and the respiration 28 per minute.

The case was diagnosed as croupous pneumonia. He was ordered quinine and a mixture of digitalis and carbonate of ammonia.

By the 4th February there was some mucous expectoration, the high temperature continued, and his respirations had become faster (48 per minute). During the next few days the dulness at the left base increased, and was found also at that side.

By the 10th Febuary the presence of considerable fluid effusion was evident. The heart apex was displaced to the right of the sternum, and he suffered from dyspnœa. He was aspirated, and 74 ozs. of dark coloured serum were removed, with much relief. Two days afterwards his respirations had fallen to 24 per minute, and he was able to sleep at night; previous to the aspiration sleep was only obtained by draughts.

On the 16th February, however, the aspirator had again to be used; 70 ozs. of semi-purulent fluid were removed. His condition continued to be fairly favourable up to 22nd February, on which date the difficulty in breathing again arose. On this occasion 23 ozs. of pure pus was removed; drainage of the pleural cavity was decided upon.

Operation.—The operation was performed on the 24th February. One inch of the 8th rib was resected in the anterior axillary line, and a large quantity of sweet pus escaped. A drainage tube was inserted, but no irrigation was used.

He improved greatly after the operation. Up to the 3rd March the discharge was sufficiently profuse to necessitate dressing him twice daily; after this date it rapidly diminished.

On the 5th March he was able to sit up in bed; it was noted at the time, however, that the persistent pyrexia was an unfavourable feature in the case. During the next fortnight the local conditions continued to improve, and on the 23rd March he was able to be up during the day. The temperature, however, continued to show an evening rise, and this pyrexia continued up to the middle of April, when it somewhat suddenly ceased. After this the sinus, which still remained, healed up; he gained flesh, and improved daily in general health. He was ultimately discharged from hospital on the 22nd May on sick furlough, apparently quite recovered.

Condition of Thorax 4½ Months after Operation.—On inspection, a scar 4 inches long is seen at the left side in the axillary line, situated at about 7th interspace. About the centre of this scar there is a granulation, which conceals the mouth of a narrow sinus leading into the pleural cavity; this discharges a small quantity of pus enough during the day to stain the dressings. The left side of chest moves imperfectly in respiration, and there is a slight flattening visible laterally. The heart apex is displaced about one inch upwards and half an inch inwards from the normal. The right ventricular impulse is visible in the 4th and 5th spaces.

On measurement the left side is 15½ inches and the right 16½ inches in circumference below the nipple. There is a spinal curve with slight convexity towards the right of the 1st, 2nd, 3rd, and 4th dorsal vertebræ, and another with slight convexity towards the left of the 5th, 6th, 7th, and 8th dorsal vertebræ.

Well-marked resonance and fremitus found over the left back and front; breath sounds audible also, but weaker than on other side. There is impaired resonance and fremitus, with feeble breath sounds, over the operation area. The right lung and heart sounds are healthy.

Remarks on Case V.—As in Case IV., the empyema arose here by the gradual conversion of the fluid effusion of a simple pleurisy into pus, but in addition there was pneumonia of the base of the left lung. The initial symptoms also make it likely that the pneumonia and pleurisy were both complications of an attack of influenza. The aspirations which were performed to relieve pressure effects enabled the gradual change in the character of the fluid to be observed and dealt with.

The result of the operation, although very satisfactory in many ways, did not have the effect of checking the pyrexia, and this has been already noted as an unfavourable feature in these cases as regards ultimate cure. In spite of this he left hospital to all appearances recovered, from a later note on this case, however, it will be seen that a small sinus has reopened leading into the pleural cavity which discharges a small quantity of pus.

A more unfavourable feature, however, is the want of recovery of the left lung, as shown by the weak breath sounds and the feeble expansion of the left side of the thorax in inspiration. His general health, however, is good, and he has no pyrexia, but is not equal to any active exertion.

Case No. VI.—Gunner C., æt. 20½. Admitted into hospital 8th December 1893 with pain in the left side and cough. Temperature 104·4° F. on night of admission (*v. chart*). A friction rub was present at the left side in the axillary line. The breathing was painful and restrained. By the 10th December under treatment the pain had disappeared, but there was dulness at the left base with weak breathing, and the apex beat of heart could not be defined. Temperature continued high. On the day following (11th) he began to cough up frothy sputum, and the dulness extended over the lower half of the left lung behind, and was accompanied by decided diminution in the vocal resonance and fremitus; breath sounds were still audible on deep inspiration. By the 13th December the dulness extended up the left back as high as the spine of the scapula, but vocal and tactile fremitus were noted as being more distinct than usual over this area. The heart apex was found in the normal position. Respirations were 25 and pulse 95 per minute, the latter was full. During the next two days the cough became more troublesome; the sputum continued bronchitic in character, but more copious. On the 16th December the following note was made:—"Is worse, had a bad "night, and was delirious. Respiration 45, irregular pulse 110, weaker. "Physical signs:—Dulness is less marked at left back, and moist râles are "audible at this base. At left side the dulness is very marked and no breath "sounds can be heard. Moist râles also present now at left front. Tem- "perature 101° F." It was thought that the general and local symptoms might be in part due to the existence of a small empyema, consequently I introduced an exploring needle attached to a syringe into the pleural cavity through the 7th space at the left post-aspect of the thorax, but without result.

By the 18th December he began to suffer from troublesome diarrhœa, the stools being liquid and of yellow colour. No breath sounds could be heard now at the left base. During the next two days he continued much the same and suffered much from delirium, which was often violent in character.

On the 21st December his pulse had risen to 120 per minute, and was growing weaker. Respiration 40 per minute and deep. Tongue was flabby and tremulous, coated at tip and edges, but red in the centre.

Physical Signs.—Apex beat of heart not displaced; no increase of heart dulness. The right lung hitherto healthy had now become affected, and loud rhonchi were audible all over this (right) front. At the left back the dulness had diminished, extending only to within four fingers' breadth of scapula spine; fremitus present everywhere over his back, and vocal resonance is increased at left base as compared with the right. No breath sounds heard at left base, but crepitations are heard just above this on deep inspiration. Normal breath sounds still present at right back. Sputum had become purulent and rusty in colour. The stools continued loose and yellow, and the

abdomen was tympanitic, there was no spots or tenderness present, however, and the spleen was not enlarged. On the morning of the 22nd December his general condition was still very bad, and latterly he had lost much flesh. The physical signs were unchanged in the left lung; but the bronchial rhonchi were less marked in the right. Again the pleural cavity was explored for pus, but with no better result than before. In the evening he was found quieter, free from delirium, and expressed himself as feeling comfortable. Later in the night, however, he somewhat suddenly sank and died.

Extracts from Notes of Post-mortem Examination.—At the post-mortem the pleurisy on the left side was found to have been more extensive than was thought to have been the case during life, as the two layers of the pleura were united by recent lymph, except at a narrow and elongated area just to the left of the spine, where there was a localised collection of pus amounting to some 16 ozs., this did not extend lower than the level of the inferior angle of scapula. The left lower lobe was in an advanced stage of catarrhal pneumonia. The upper lobe was also becoming affected, and bronchitis was marked throughout the whole lung. In the right lung the upper lobe was also solidified, here the inflammation was more recent. The intestines were healthy, and the other organs showed nothing of particular interest.

Remarks on Case VI.—This is an illustration of what is known as localised empyema, the five previous cases being instances of the general form of the disease. The clinical symptoms in this case were somewhat puzzling. It was clear that pleurisy on the left side had been followed by pneumonia, affecting the lower lobe, and that bronchitis was also present, and there was further evidence of some effusion into the left chest, but it was not sufficient to produce any pressure effects. At the same time the constitutional symptoms were severe, and out of proportion to the apparent condition of the lung, as it must be remembered that the right lung was healthy during the greater part of his illness and only became seriously affected the day before his death, and he also appeared to have a certain amount of the left lung still available for breathing. Even when the involvement of the hitherto sound right lung occurred the violent delirium, type of temperature, diarrhœa (which was evidently not enteric), and wasting, all suggested the presence of something beyond the pneumonia which was known to exist. This gave rise to the suspicion that a purulent collection existed in the pleural cavity which was aggravating his condition. Two explorations were, therefore, made, but unfortunately, as the sequel showed, not in the right place, the needles having been introduced too far away from the spine and too low down to strike the empyema, the existence of which the post-mortem confirmed. If the pus had been found and dealt with while the right lung continued healthy it might possibly not have saved life in this case, but it would at any rate have given him a better chance of recovery, and as it is quite easy to miss a small purulent collection situated in the pleural cavity the explorations should be carried out in a systematic way. I think it will be a good plan, therefore, when the existence of a localised empyema may reasonably be suspected, to map out the thorax in the following manner:—

(1.) Draw a line round the chest from sternum to spine at the level of the nipple.

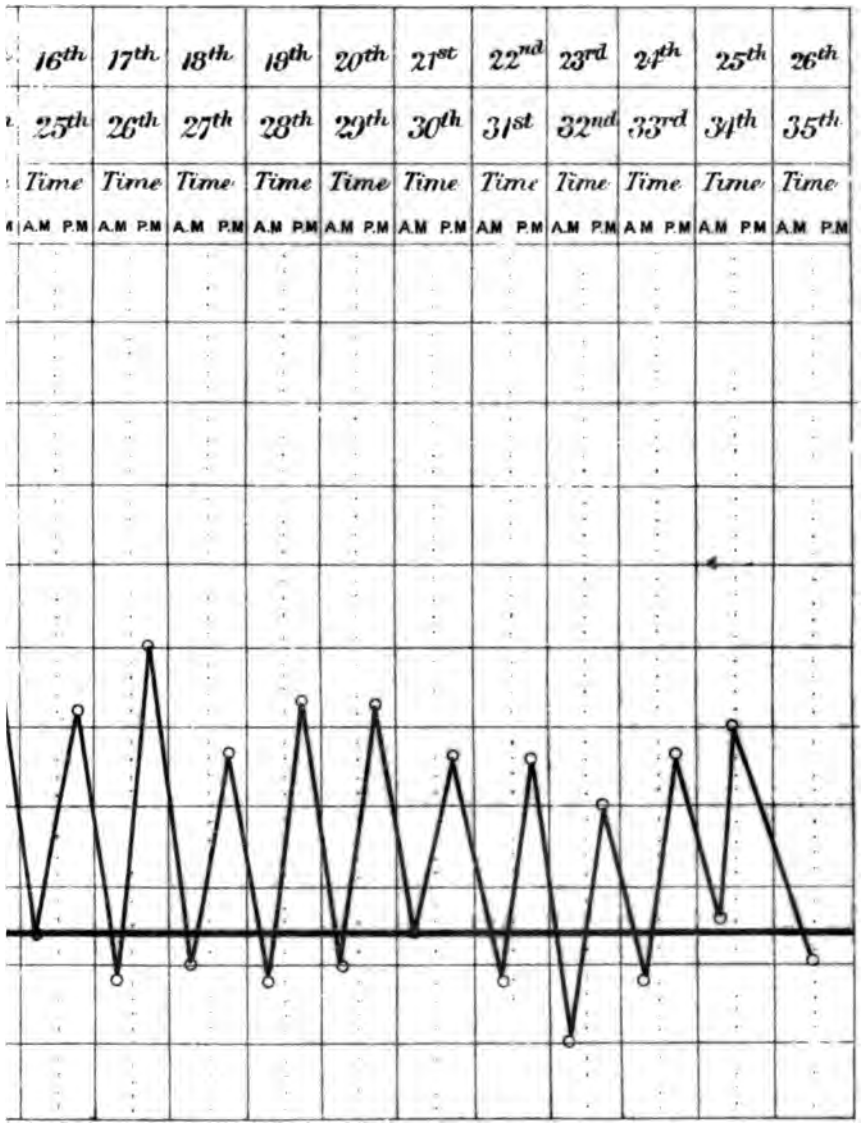
(2.) Draw a second line vertically downwards from the clavicle passing the inner edge of the nipple to rib margin.

(3.) Draw a third vertical line running through the centre of the superior border of the scapula behind to about the level of the 10th rib.

The affected side of the chest will then be marked out into a number of spaces at a suitable spot in each (avoiding, of course, a bone, such as the scapula), the needle should be introduced, beginning at the back first, from below upwards, then going on to the side, and, if necessary, the front of the thorax.

This is, of course, only intended for those cases of localised empyema in which the physical signs do not give any accurate indication of the situation of the pus. With a thoroughly aseptic needle the risk is very slight, and the benefit to the patient in the detection of a purulent collection is considerable.

ɜSION. (CASE Nº I.)



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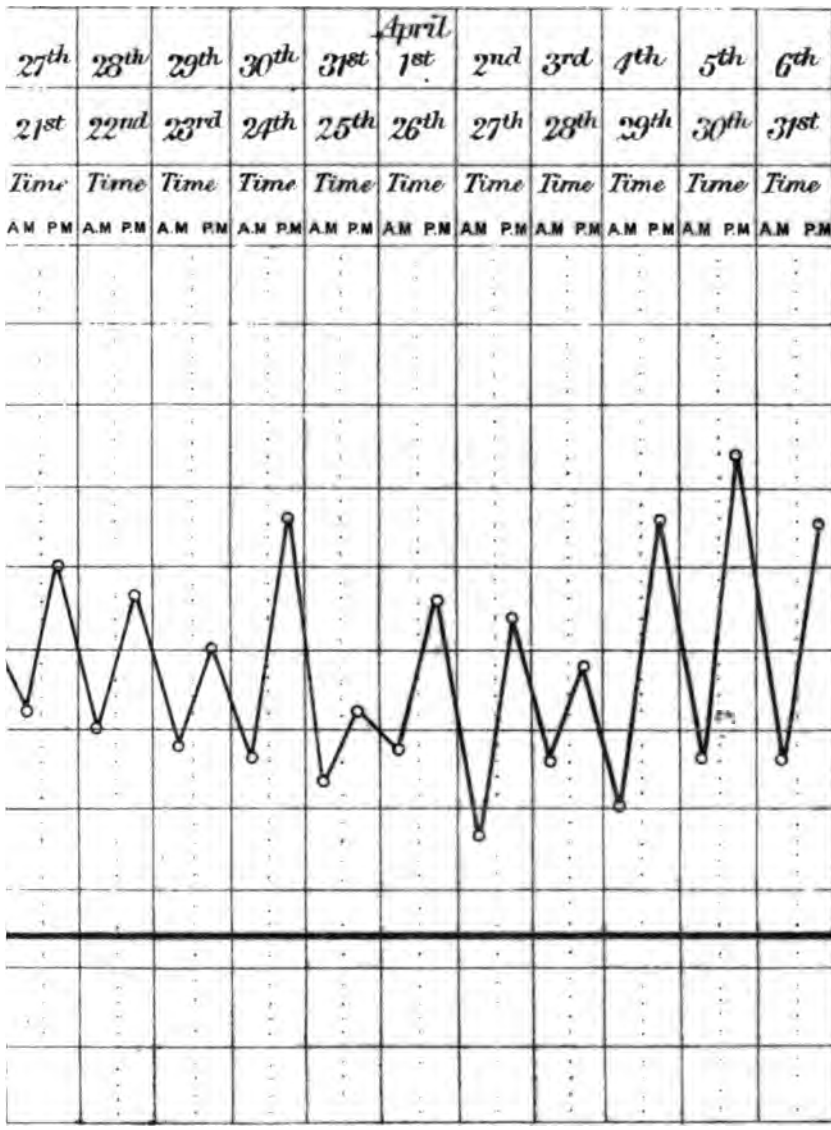

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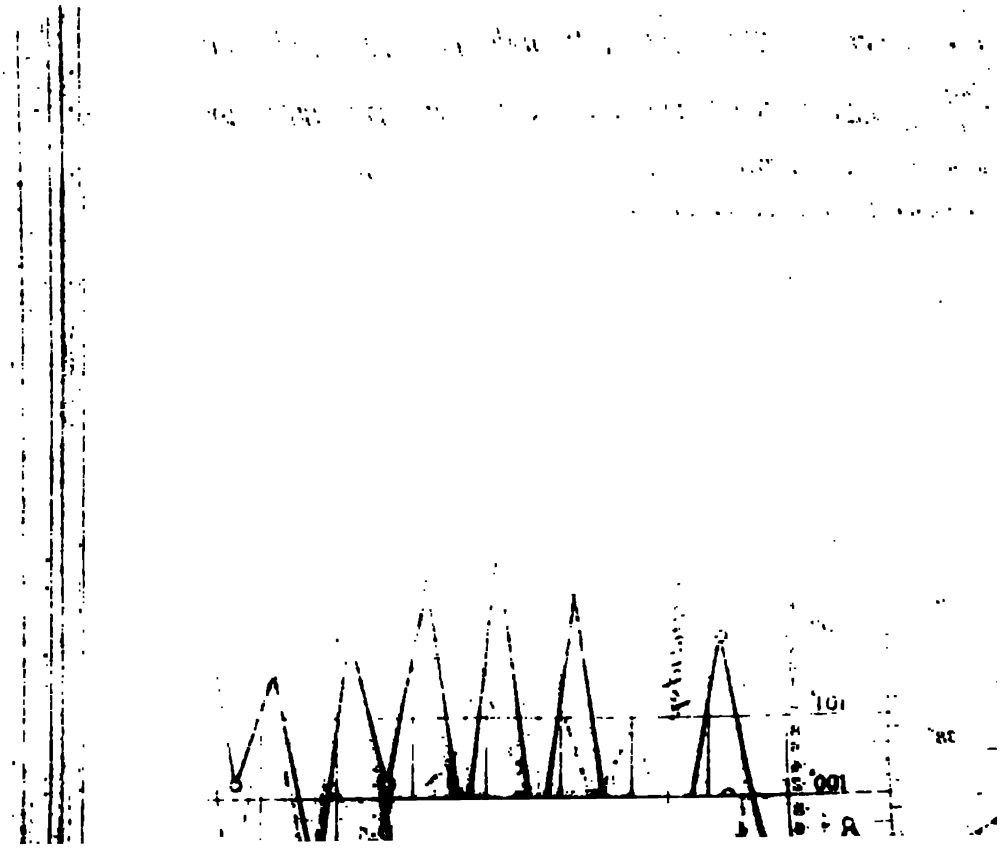

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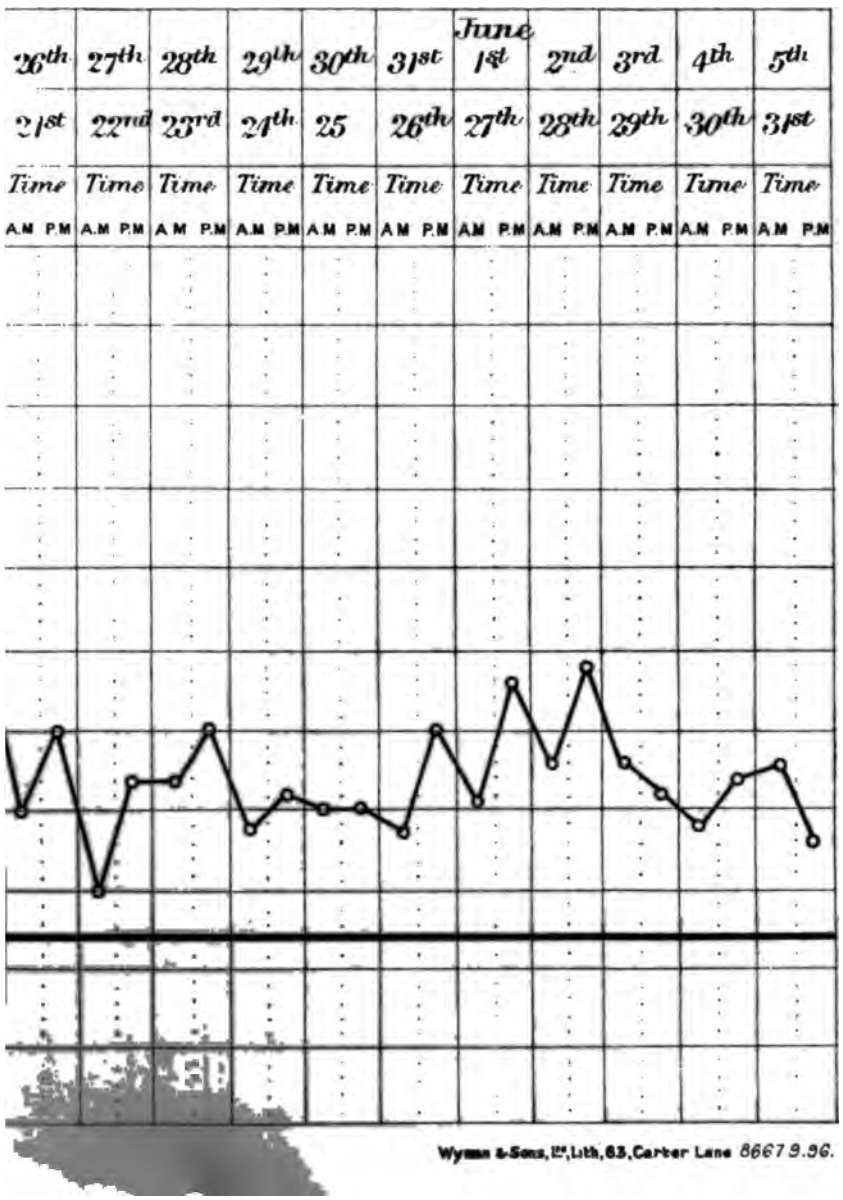
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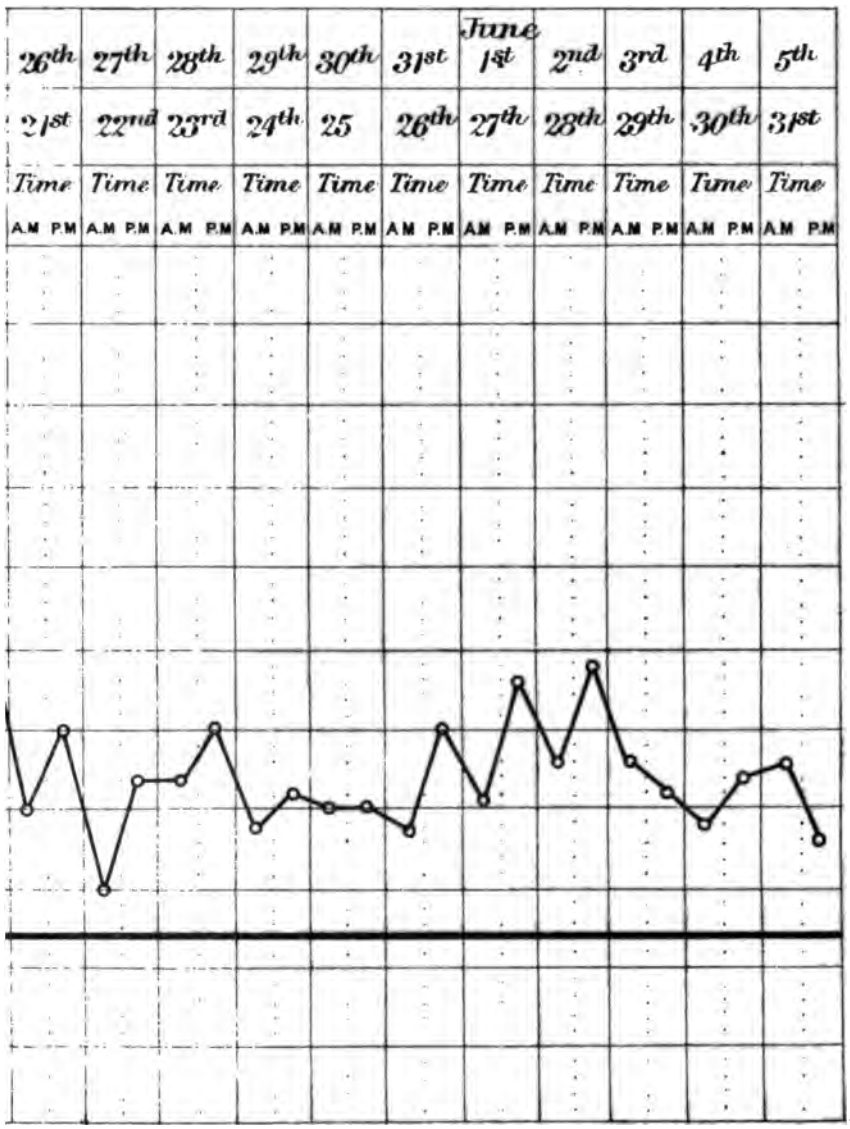

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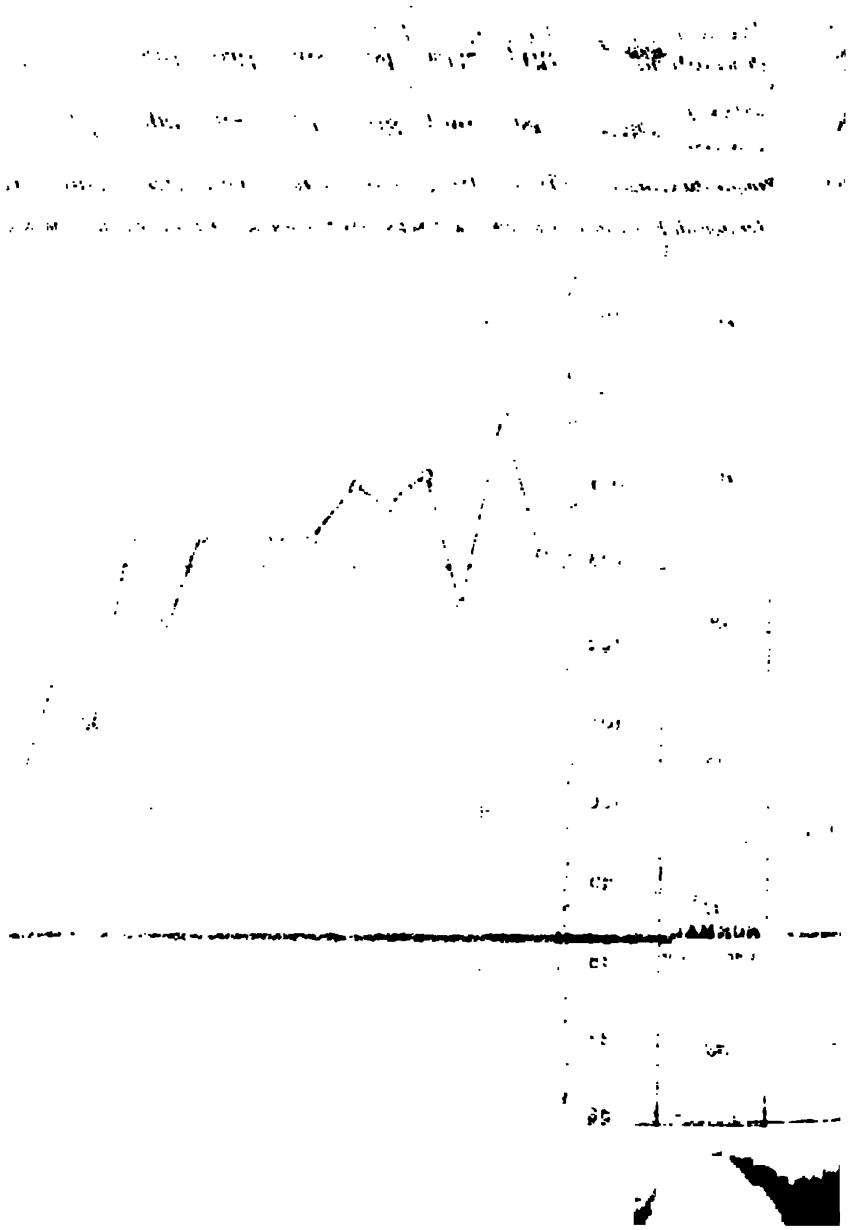

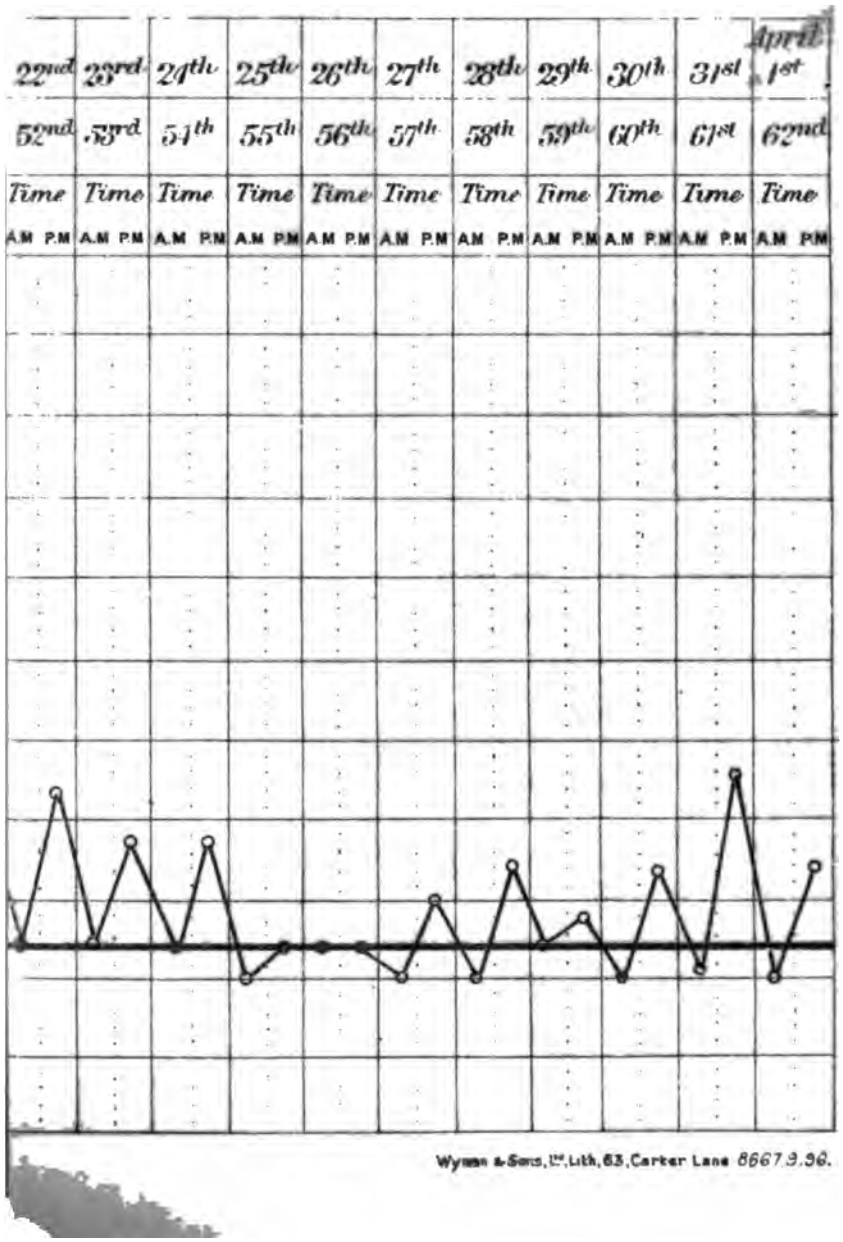
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TEMPERATURE CHART OF G. C

In conclusion, I will now briefly sum up the chief points concerning the disease empyema and its treatment, which have been dwelt upon in the foregoing pages :—

(1.) Empyema is always a complication of pre-existing disease.

(2.) A simple serous effusion may become purulent apart from surgical interference.

(3.) In any inflammatory affection of the lungs or pleural membrane, the surgeon must be constantly on the look out for this complication, and the grooved or hypodermic needle must be systematically used when there are any grounds for suspecting its presence.

(4.) The presence of pus having once been established no time should be lost in repeated aspirations (if this is done once it is sufficient), but free drainage should be established by the resection of a suitable rib.

(5.) Irrigation of the pleural cavity is not necessary in most cases, and is not without risk.

(6.) In suitable chronic cases the resection of portions of several contiguous ribs should be undertaken to assist the natural efforts at recovery.

(7.) Cod-liver oil and quinine will be found the most useful drugs during the long period of treatment which is generally required after even the most successful operation.

APPENDIX No. IX.

REMARKS ON SIX DAYS CONTINUOUS ROUTE MARCHING AT THE CURRAGH.

By Brigade-Surgeon-Lieut.-Colonel J. BARRY, M.D., Army Medical Staff.

Three battalions took part, and the accompanying Table marked A(1). gives details of corps, strength, sickness, &c.

The health of the men generally was good, and the three battalions, with the exception of a few men, seemed to have been all the better for their hard work. It will be observed by Table A(2). that no sickness has resulted from it.

The 2nd East Yorkshire and 1st Yorkshire Regiments suffered a good deal from sore feet, but no men were non-effective from this cause in the 1st Royal Munster Fusiliers. With the exception of this disability there is nothing special calling for comment on the marches of the two first battalions; and I propose to deal with sore feet and its causes in the following remarks on the march of the 1st Royal Munster Fusiliers:—

1ST ROYAL MUNSTER FUSILIERS.

It will be seen from Table A (1). that 11 officers and 616 rank and file took part in the march in question. Of these 554 men accomplished the full distance, 156½ miles, in six days; the remainder consisting of boys under 16, recruits under three months, and footsore men, did 98 miles in the same time. No man fell out during the six days and all were in marching order.

Only three men reported sick during the period, one tonsillitis, one quinsy, and one pneumonia. I inspected the battalion very carefully immediately after the last march, and I found that the general appearance of the men was very healthy their faces ruddy, not thin; and their muscles hard and well-developed. Previous to the continuous route marching I asked the Commanding Officer if he would weigh a company before and after the march, and the following extract from his report is the result:—

"1st Royal Munster Fusiliers.—Weight before and after the marching—

"7 men did not vary; 12 men lost 1 lb.; 4 men lost 2 lbs.; 6 men lost 3 lbs.; 1 man lost 4 lbs.; 3 men lost 5 lbs.; 1 man gain ½ lb.; 8 men gained 1 lb.; 3 men gained 2 lbs.

"Nett loss of 47 men 42½ lbs., or a little over ¾ lb. per man."

By this it is apparent that the men did not, with few exceptions, lose weight, and that some actually gained. In addition at my inspection I picked out a number of men, in fact all, who looked thin and somewhat overtrained, and Table B. shows the result.

I consider these to have been the "weeds" of the regiment, although some of them did the entire distance, but would scarcely have passed a medical officer as fit for active service.

ARRANGEMENTS TO SECURE SUCCESS.

Under this heading in Colonel D. G. Johnston's report it will be seen that the summer training of the battalion, including the manœuvres, was followed by the winter training and under regimental arrangements in company and other training special attention appears to have been directed to securing efficiency in marching.

Food.

The men were well fed during the six days, their rations being supplemented by extra food supplied regimentally. They received at the mid-day halt a meal of bread and brawn with a pint of stout, or lemonade if preferred, and those on guard (they all did their turn of guards) got extra food at breakfast and a supper meal in addition.

Sore Feet.

This disability accounted for most of the casualties among the 1st East Yorkshire and 1st Yorkshire Regiments, and if it could have been avoided these battalions might have also shown a very small casualty list. Even the Munster Fusiliers did not appear to have been altogether free from it, although owing to *esprit de corps* and pluck no man fell out. Considering the extraordinary distances accomplished by this battalion, it is well worthy of consideration to see what means were adopted to combat foot soreness. The following extract from Colonel Johnston's report explain :—

"(*b.*) Throughout the route marching season the men's boots and socks were carefully attended to by company officers, and foot inspections held after each long march. All men found to be lame were brought before me, and I personally endeavoured in each case to trace the cause and see that it was removed."

"(*c.*) I ordered that one pair of boots should be kept oiled during the latter part of the season to soften the leather."

"(*d*) Throughout the six days' continuous marching, and for about 10 days before it, I made a free issue to all men who required it of a preparation of spirits of wine and boracic acid to harden soft feet, 'Elliman's Embrocation' for bruises, slight sprains, and inflamed joints, &c., of Walkphar powders where a tendency to heel galling appeared prevalent, and of vaseline in case of raws."

In addition to the foregoing, I understand a large number of men soaped their socks.

It is clear, therefore, that extreme care was taken by the colonel and company officers to overcome this frequent source of inefficiency, and to this care the success of the march was to a great extent due, as, no matter what the physique of the men, they could never have done the distance with badly blistered feet. That they were not altogether successful merely proves that there is something radically wrong in the soldier's boots, leggings, &c., and I shall take each of these separately.

Boots.

These are considered not to have enough of leather over the toes; the leather is very hard, very thick, especially about the heel, where it is nearly a quarter of an inch thick in some boots. The upper leather is also much too thick. The seam at the heel opens when bent and chafes the heel. The clumped soles make the boots so rigid that the natural working of the joints of the feet is very much interfered with while walking, so that any movement which takes place is within the boot, causing friction, and hence blisters. The weight of the boot is excessive; a No. 8 size one with hob-nails weighed 4 lb. 8 oz.; another pair of the same size without hob-nails weighed 4 lb. 2¼ oz. This alone is quite enough to condemn the boot.

Leggings.

I fear these are as unserviceable as the boots. I weighed a pair worn by one of the Munster Fusiliers, and their weight was 1 lb. 6 oz. This rests on the boot, and bears the weight of the lower part of the leg of the trousers as well; and, pressing alternately on the instep and heel in walking, is bound to produce galling, and undue pressure on the foot.

Socks.

The seamless sock is an excellent one in every respect, excepting as regards wear. A better quality of wool should meet this, and all woollen socks should be washed before being worn, as they close up and wear better afterwards.

At present there is not a sufficient number of sizes.

Busby.

This weighs 23¾ ozs. as compared with 14½ ozs., the weight of an infantry soldier's helmet, so that as a headdress for route marching it is hot, heavy, badly ventilated, and opposes a large surface to the wind.

Conclusion.

The universal opinion expressed by all who took part in the recent route marching is in condemnation of the present boot and leggings. A boot somewhat lighter in the sole, the latter not clumped, as in the foreign service boot, with lighter upper leather, especially about the ankles, and more room over the toes, and weighing not more than 3 lbs. 8 ozs. could, I should think, be made, and yet be serviceable.

As regards "putties" as a substitute for leggings, there can be very little doubt as to their being better in every respect; this has been long since proved in India, the trowsers buttoning just below the knee as knickerbockers. This kit would be much lighter and more easy to march in than the present, and it would be desirable that something of the kind should be adopted in this country for marches, now that such long marches are a part of the regular training of the soldier.

It is well known that a few pounds make a great difference to a horse in even a short race, and the present kit could in the way I have suggested be lightened about 2½ lbs., which would be a considerable difference to a man in a long march, especially as most of it would be taken off his feet.

I am strongly of opinion that if the Royal Munster Fusiliers had some such kit as this, with a better headdress, they could exceed the distance they have just done and carrying 100 rounds of ammunition (weighing 6 lbs.); the latter would counterbalance the weight of the valise, and thus prevent the dragging of the braces which is so tiresome.

Regarding extra food during continuous route marching, I am of opinion that it is absolutely necessary, and hence the expense should be borne by the public. Bread and cheese would make a good mid-day meal and would cost very little.

Table A. (1).

Regiment.	Strength on Parade 1st Day.		Average number of Miles marched Daily.	Average rate of March per hour in Miles, exclusive of Halts.	Total Distance covered in Miles.	No. of Men who did the entire Distance.	No. of Men reported Sick, Foot-sore during the 6 Days.	No. of Men reported Sick from other causes not directly connected with the Marching.	No. of Men admitted to Hospital on account of the March.
	Officers.	Rank and File.							
2nd East Yorkshire Regiment.	12	430	16	3·5	96	367	57	11	1
1st Yorkshire Regiment	9	408	17·17	3·04	103	354	43	20	1
1st Royal Munster Fusiliers.	11	616	26·04	3·06	156¼	554	—	3	—

TABLE A. (2).

RETURN of Sick during a period of 10 days after the March.

Regiment.	Diseases connected with March.	Diseases not caused by March.	Total.	Admitted to Hospital.		Remarks.
	Sore Feet.	Other		Connected with March.	Not connected by March.	
2nd East Yorkshire Regiment.	55	13	68	1	9	
1st Yorkshire Regiment	4	17	21	1	10	
1st Royal Munster Fusiliers.	3	18	21	—	12	

TABLE B.

ROYAL MUNSTER FUSILIERS.

Rank and Name.	Age.	Service.	Weight on Enlistment.	Present Weight.	Miles Marched.	Remarks.
	Yrs.	Yrs.	Lbs.	Lbs.		
Sergeant O'C——	28	10	120	121½	156	Thin, lost 5 lbs. on the march.
Lance-Corporal J——	19 5/12	0 11/12	124	129	Cyclist, Cycled 400	Pulse weak, otherwise well.
rivate G——	20	2 5/12	122	127	156	Pulse strong, no apparent loss of flesh.
„ N——	19	0 6/12	118	125	156	Pulse strong, no apparent loss.
„ K——	18 6/12	0 5/12	128	142	156	Slightly anæmic.
„ F——	19 6/12	1	122	135	156	No apparent difference.
„ M——	18 5/12	0 6/12	128	127	156	Face slightly drawn. No wasting of muscles.
„ D——	23	1 5/12	154	146	156	Pulse strong, face thin, appears thin, and muscles somewhat flabby.
„ D——	21	1 5/12	118	115	156	Face thin and drawn, muscles seem flabby and wasted. Feels fit.
„ B——	18 6/12	0 5/12	130	140	156	Pulse weak.
„ H——	18 6/12	0 6/12	116	116	156	Thin, but otherwise no ill effects.
„ O'N——	23 1/12	1 5/12	133	128	156	Appears to be slightly pulled down.
„ L——	20 10/12	0 10/12	130	131	156	No apparent bad effects.
„ S——	22	10	86	116	156	Pulse strong, muscles appear wasted.
„ Mc——	18 10/12	0 6/12	116	123	156	Anæmic, but feels fit.
„ K——	20 6/12	7 7/12	117	116	156	Face drawn and is rather pulled down.
„ J——	18 6/12	0 7/12	120	112	93	Recruit, pulse week but feels fit.
„ W——	18 6/12	0 6/12	120	127	156	Pulse strong and no bad effects evident.
„ R——	19 6/12	0 6/12	126	123	156	Pulse strong, muscles do not appear wasted.
Boy P——	16 1/12	1 1/12	73	90	113	Pulse strong, no bad effects noticed.
Private Mc	16 6/12	2 6/12	79	110	156	Pulse strong, no wasting.

APPENDIX No. X.

REPORT ON A CASE OF TRAUMATIC PARAPLEGIA RELIEVED BY TREPHINING.

By Surgeon-Captain F. W. Begbie, Army Medical Staff.

Gunner J. T——, æt. 22 9/12, with 4 9/12 years' service, of which 1 4/12 years had been spent in India, was admitted into the Station Hospital, Agra, N.W.P., on January 15th, 1896, having been transferred from the Artillery Camp of Exercise at Gurgaon, near Delhi, suffering from almost complete loss of power in his limbs, and inability to control his movements.

Previous History.—Patient is the eldest of three children, his father being a labourer in Milverton, Somersetshire, and patient previous to enlisting followed the same employment. All the members of his family always enjoyed good health, and patient was no exception to the rule until he met with an accident under the following circumstances:—

In 1883, when 10 years of age, he was returning from work one day on a butcher's cart when the horse took fright and the cart was overturned. Patient was thrown out, falling on to a heap of stones and rendered unconscious. On being examined after the accident a deep scalp wound situated on the left side of the head over the situation of the fissure of Rolando was discovered. The surgeon who attended patient informed his parents that the skull was not fractured, although the wound reached down to the bone. The wound was sewn up and healed in about a fortnight, leaving a deep depressed scar in the scalp, from which, whenever the weather has been abnormally hot, patient has suffered severe pain, which he describes as of a darting character.

In 1891 patient enlisted and went through the usual courses. On landing in India, in November 1894, he was sent to join his battery at Mian Mir, reaching that place on November 13th. All went well with him until the hot weather began, when the headaches returned with renewed force, and occurred almost daily, but with the return of the cold weather ceased entirely. No history of any specific disease, either up to this period or subsequently, can be obtained. Early in November 1895 patient suffered from an attack of ague, this being his first since landing in India.

On November 30th, 1895, the battery started to march from Mian Mir to Agra on change of station, patient accompanying it. On reaching Amritsar on December 4th, 1895, patient had another attack of ague, accompanied with severe headache of the same nature as the attacks during the hot season; for this he was treated and recovered in a few hours. On January 3rd, 1896, the battery reached Gurgaon Camp of Exercise. A few days later patient had another attack of ague with the usual head symptoms, lasting about a day. Two or three days after this patient thought he was "in for" another attack of fever, as he felt his legs "all shaky." He was given quinine, and allowed to continue his duty. Ten days later he again reported sick, complaining that the shakiness of his legs had increased to such an extent as to render him unable to walk. This being so he was placed in charge of an orderly, and brought into the Station Hospital, Agra, on January 15th, 1896.

Hospital History.—On first seeing patient on the following day I noticed that he was quite unable to walk, that he could not stand with his eyes shut, and that he seemed to have lost control over his movements. His face was deadly pale, giving the idea of epilepsy (of which no history could be found), pupils dilated evenly, tongue protruded towards the right, his speech was thick and mumbling, knee jerks were both much increased, ankle clonus in both ankles well marked. He informed me that he had had no "lightening

pains," or crises of any sort. On further testing him I found he was unable to place a spoon in his mouth with his eyes shut, and that there was no loss of sensation anywhere, nor was the Argyle-Robertson phenomena in the pupils present.

I considered the case to be one of spastic paraplegia, on account of the foregoing symptoms; this opinion underwent change on the following day, owing to finding the depressed scar on the left side of the head. This scar extended about an inch and a half in length, the anterior portion of it starting from a point 3½ inches above the left eyelid, and about 4 inches above the external auditory meatus, the scar extending in a slightly upward and backward direction. If pressure was applied directly to the scar patient called out from the intensity of the pain.

It was resolved to try the effect of rest and treatment for a fortnight before proceeding to any operative interference; patient was therefore given generous diet, with stout, and ordered a combination of iron, pot. iod., quinine, and strychnine. At the end of the fortnight patient was distinctly worse, and his symptoms had increased in severity. This being the case a consultation was called for, with a view to opinions being expressed as to the desirability of trephining over the deepest portion of the scar in the scalp.

The operation having been decided upon, and the consent of the patient and the senior medical officer having been obtained, the operation was performed on February 2nd. A semicircular flap, having as its centre the most depressed portion of the scar, was raised from the bone, and a ¾-inch trephine being used, a crown of bone was raised from the skull and removed. On examining the removed portion it was noticed that the outside was rough and irregular, whereas the inside was smooth and normal, except that at the upper portion there was considerable thickening; no inflammation of the dura mater could be seen. All hæmorrhage being carefully stopped, the flap was replaced, and eleven silver wire sutures were applied, the wound being dressed with perchloride of mercury and antiseptic dressings.

February 3rd (the day following).—Slept well; temperature 99·2°; no headache and no pain; pupils are less dilated; no other change.

February 6th.—Still no headache and no pain; temperature normal; tongue is now protruded quite straight.

February 8th.—Wound dressed for the first time; all sutures except two removed; wound almost healed; no pain; temperature normal.

February 11th.—Is able to put a spoon into his mouth now with his eyes shut; tongue continues straight; pupils normal.

February 16th.—All dressings removed.

February 20th.—Allowed up; general condition excellent.

February 22nd.—All movements are now normal, except that the knee jerks are still increased in both knees, and ankle clonus is still present in the right ankle, having now entirely left the left ankle. He is able to stand to-day with his eyes shut, and to walk the length of the ward without assistance.

February 27th.—Reflexes in both knees are now normal, but ankle clonus is still present in the left ankle; is now able to run and jump without any difficulty, and has had no headache since the operation.

March 6th, 1896.—Patient is now perfectly well, except for slight ankle clonus in left ankle; is able to be up and about all day without fatigue.

The same generous diet, combined with the iron, quinine, and strychnine, has been continued throughout. Patient leaves here on March 14th for Kasauli in the hills, and I have every reason to expect that he will return completely cured and able to perform his duty at the close of the hot weather.

APPENDIX No. XI.

NOTE ON INJURIES OF THE BACK AS THEY OCCUR IN MILITARY PRACTICE.

By Surgeon-Lieutenant-Colonel J. MARTIN, Army Medical Staff.

Difficulty is frequently experienced in arriving at a correct estimate of the extent of injury which follows contusions, or falls on the back, occurring among soldiers. When there is a history of either immediate or remote injury, and a suspicion of malingering or exaggeration of suffering, the discrimination of sub-acute meningo-myelitis, or of spinal concussion, with all those diverse and heterogeneous effects of molecular disturbance of the whole nervous system which may result therefrom, is not an easy matter at first, when signs of injury to the structures composing the spinal column are absent or have disappeared, and the symptoms of secondary inflammation are ill defined or not yet established.

Peculiarities in Military Practice.—Pronounced symptoms of spinal mischief would, of course, leave little doubt as to the nature of such cases, as is the rule in those presenting themselves at civil hospitals, in which the disease is not so incipient as to render a correct diagnosis a matter of difficulty; but, in military practice, the surgeon sees and treats the initial injury before secondary results can have been established, and, moreover, when a court of inquiry is held on the circumstances under which the injury was received, is supposed to be able to form an opinion as to what its ultimate effects will be on the soldier's future service. This, with the frequency of such injuries among soldiers, and the inducements to feign or exaggerate disease for the purpose of evading duty, or of being invalided home from foreign service, and the deplorable results which may follow, both to the soldier and the surgeon, from under-estimating the importance of symptoms complained of—although these perhaps at the time may be trivial and apparently contradictory—and a resulting failure in timely diagnosis and treatment, are all considerations which combine to render this question of the early and correct diagnosis of spinal injuries one of paramount importance to the military surgeon.

It can be readily understood how it is that injuries of the back are particularly well adapted to the purpose of the malingerer. Probably it does not often happen in these short-service days that a soldier determines to feign disease, and persists in false statements regarding obscure subjective symptoms, with all the astounding patience and pertinacity so often experienced in bygone times. More probably the practice of deception is now gradually borne in upon him; he slides into it. When he is admitted to hospital for an injury to the back—a severe shaking, or a contusion at gun practice or stables, a fall from a height, or whatever it may be—he is, of course, suffering from such injury, but he is sharp enough to discover before being very long in hospital, that when the immediate local objective symptoms of the injury are passing away, the surgeon has no very reliable means at his disposal whereby to verify the continuance of subjective symptoms—pain, weakness, giddiness, inability to stoop or walk, &c.—if he persistently asserts the continuance of these. He did not come to hospital as a malingerer, but he develops into one now; he has not to feign positive symptoms, but merely to persist in negative ones; inability to do certain things, or to feel certain things, in fact he has only to "sit tight," as the phrase goes. A man may be a malingerer negatively as described, exaggerating his disabilities, and the surgeon may be aware of this and think, consequently, that there is not much wrong with him, but yet it may happen that in three or four months out comes his chin, down goes his neck, a few of the spinal processes project, and he is crippled for life, or he has to be discharged from the service in consequence of the supervention of some of those permanent derangements of nerve function which follow spinal injury, without any manifest pathognomonic symptom indicative of lesion of the

brain or cord on which an unfavourable prognosis could have been legitimately based.

Experience of Colliery Practice regarding Malingering.—That this class of injury lends itself peculiarly to the purpose of the malingerer has been proved by the statistics of results of colliery accidents before and since the establishment of miners' benefit societies. One of the conclusions arrived at, after a discussion of this subject, by the South Wales Branch of the British Medical Association, was "that the South Wales and Monmouthshire Permanent "Miners' Fund has had a good deal to do with the genesis of nervous "symptoms after accidents" (B. M. J., May 4, 1895, p. 968). But it must be remembered that injuries to the back in miners are, as a rule, quite different in cause, nature, and extent, to the same injuries among soldiers. While the bulk of the former are the result of the impact of a heavy mass on the back in a stooping position, doubling up the vertebral column, and causing spinal sprain in all its variations, from mere stretching of the muscles and ligaments to rupture of nerves, with extra- or intra-dural hemorrhage, or injury of the cord, this form of the injury is scarcely ever met with among soldiers, ordinarily, except on field works or military engineering. In soldiers, contusions of the back are usually received in the erect position, and in falls the impact is very rarely received in such a direction as to cause any severe bending of the vertebral column, so that direct primary mechanical injury to the column or cord is rarely met with.

Objective Symptoms of remote Results of Back Injuries.—It is obvious from the considerations mentioned that the subjective phenomena on which we mainly depend as indicators of remote or secondary results of these injuries are uncertain, and it becomes a matter of some importance to inquire if there exist any objective symptoms of these results which can be plainly observed and used by the surgeon as controls in estimating these subjective phenomena, enabling him to corroborate or discount these, so as to arrive at an approximately true estimate of their value. It has happened that a considerable number of injuries to the back among soldiers have come under my own observation, and, believing from experience of these that certain plain symptoms of remote injury—apart from the more definite indications of gross injury—do exist, which render the surgeon to a great extent independent of the statements of the patients, and place him in a more certain position regarding his diagnosis, I describe them.

These signs are—(1) Period of supervention; (2) Facial expression; (3) Respiration; (4) Increase of standing base; and, of less diagnostic importance and later, (5) Loss of weight; and (6) Loss of height.

Period of Supervention.—By the first of these is meant the period which elapses between the date of injury and the time that remote results of it supervene, or are complained of by the patient. Strictly speaking, this is not a physical sign, but it is an indication of great importance, for it is only in severe injury, of the severity and serious effects of which there can be but little doubt, that such a distinct interval of time does not generally occur. When a man is taken into hospital with injury of the back, and there are no distinct signs of lesion beyond bruising of the soft parts, if, after ten days or a fortnight, he says he cannot leave hospital because of pain, weakness, inability to stoop, &c., the probability is that the affection from which he is suffering is laziness; but if he leave hospital on recovering from the local symptoms—which should be in about a fortnight from the date of the injury—and again presents himself in about three weeks or a month from the time of his discharge, the probability is that secondary effects are about to supervene. His having been out of hospital in the interval does him no harm, for, if secondary effects are going to ensue, his being in hospital would not prevent them. It would appear to be correct to discharge these cases of back injury from hospital in a fortnight or so—making a note of height and weight for future reference, if necessary—unless there are distinct signs rendering discharge inadvisable. It is a mistake to let such cases hang on in hospital, waiting to see if remote effects of the spinal injury are going to develop. They may be recommended for light duty, and told to come to hospital once or twice a week, to have the back rubbed with some liniment—more for the purpose of keeping them under observation than for any good a liniment is likely to do. If no results follow, well and good, nothing more is heard of them; for a man will stay in hospital

malingering, when he will not come to hospital malingering. If, on the contrary, secondary effects ensue, it is very certain he will report sick within a month, when the following tests will be found useful :—

Facial Expression.—Even in early stages of permanent injury of the vertebral column, or lesion of the cord, or of those more obscure nervous affections which occasionally arise from spinal injury, there is a peculiar anxious expression of the face. The eyes are round and somewhat prominent and staring, and the corners of the mouth drawn downwards.

Respiration.—It was before observed that from the direction of impact of the force in back injuries in soldiers, spinal sprain, that is, sprain of the articulations of the vertebræ, is rarely met with; but sprain of the articulations of the heads of the ribs with the bodies of the vertebræ is not such an unusual accompaniment of serious injury, and its effects remain after bruising or laceration of the soft parts have been recovered from. These articulations are so bound by strong ligaments that no motion is possible but the slight gliding of the articular surfaces over each other, which occurs in the respiratory movements of the ribs. If, then, some weeks after injury, it is found that the respiration is shallow, diaphragmatic, and over 25 in a minute, this would indicate that at the time of the injury the force of impact had been severe enough to cause some motion of the head of one or more ribs, by stretching, if not rupture, of some structure entering into the formation of the articulation; so severe as, in all probability, to have caused also an injury to the intervertebral substance, or hæmorrhage; and as, in the end, to lead to tubercle and caries, if there happen to be a tubercular tendency; for we know how frequently apparently slight injuries (sprain of the knee, for instance) initiate tuberculosis where there had been no previous manifestation of the disease—or sclerosis of the cord, a result of spinal injury to which the previous medical history of many soldiers renders them particularly liable. This form of impaired respiration is, of course, quite different from that due to paralysis of the intercostals, which would only occur in fully developed disease.

Increase of standing Base.—Gradual increase of the space between the heels when standing is an early, an almost constant, and a fairly trustworthy sign of serious disturbance of the nervous system following injuries of the back. The position is involuntarily adopted by the patient when in the erect position, in order that the centre of gravity of his body may be lowered. Obviously, it is a sign which may be noticed more in military than in civil hospitals, for as the natural position of a soldier when standing is to keep the heels well together, a departure from this position at once arrests the attention of the surgeon, especially by comparison with other patients in the ward. The attention of the patient or others ought not to be called to this peculiarity of standing if we wish to retain it as a physical sign by which to test his complaints of subjective troubles; for clearly it would become valueless for this purpose if known to a patient who may use it for deception. When entering the ward or standing opposite the man is not the time to look for this; but a side glance when in another part of the ward, or when leaving, or a casual look in when passing the ward, may detect it. It is when this position is *habitually* adopted, and especially when a *gradual increase* of space is noticed, that the sign is of importance. I have seen the space gradually increased to as much as eight inches in a case of contusion of the back caused by falling from a verandah, subsequently invalided as unfit for service, although no very definite signs existed on which to arrive at a diagnosis of the exact nature of the injury.

Inauguration of latent Nerve Disease.—In such injuries it is always advisable to consider carefully the general health of the patient, his previous medical history, and, as far as possible, his hereditary predispositions, from family history. The first manifestations of tuberculosis are frequently inaugurated soon after, and hence it is assumed by such injuries; although, of course, the prodromal sequence of the phenomena is not susceptible of direct proof; and latent nerve diseases, which, it is possible, would have remained undeveloped for some time, at least, if not altogether, had it not been for the occurrence of some such accidental cause of inauguration, are often brought into manifest activity by the irritation of the nerve centres which is caused by sources of nerve irritation, in themselves often very trivial, had it not been for the unsuspected existence of an explosive to which such apparently trivial irritants act as an igniting spark. Although most surgeons have observed, in their own

experience, such a sequence of circumstances, it is probable that, owing to the trivial nature of the accidental nerve irritant, we often fail to trace the connection between it and the very much graver disorders of nerve function, which, although not caused by it, are inaugurated, or initiated, or developed by it. I recall the case of a sergeant's wife who scalded her foot, taking a kettle from the fire to make tea one afternoon. She never drank that tea, or anything else; she was brought to hospital in the evening with fully developed hydrophobia, and died the next evening, Only after very careful inquiry was it elicited that, about a month before, her little dog had been seen playing with a dog which was supposed to be rabid. There had been no bite, the poison must have been communicated by licking the hand. Now, in this case, a trivial nerve irritation apparently developed a pre-existing but latent condition of nerve irritability; and, if this latter had not been of so distinctly specific a nature, the existence of such latent condition would not have been so easily observed. Whether this latent condition, or any other less specific one, would pass away in time, without ever being developed into manifest disease if an accidental nerve disturbance had not come into play as a developer, it is, of course, impossible to say. I remember a still more remarkable case in which the rigor induced by severe purgation seemed to act as the developer of dormant nerve disease. It was that of a young apothecary on sick leave from Burma to Madras. No very distinct condition existed; he had been sent from Burma for "debility." His six months' leave was up and he seemed to have recovered very well, but he wanted to get his leave extended, and the day before his board for that purpose, he took a large dose of Epsom salts, as he did not want to look too well. He was severely purged by this, and had rigors; and the same evening sensation became disordered, for he remarked to someone that water he was washing his hands in was hot, when it was cold. He was not able to appear before the board. Next day he was unable to walk, or to bring the points of the thumbs together, such was the loss of co-ordinating power; although on the morning of the day on which he took the purgative he had assisted me in an amputation, picking up some small vessels as delicately and exactly as anyone could. In two days he died by paralysis of the intercostals. Previously to this there had been no indication of a neurotic diathesis. but on inquiry I found that an uncle and this uncle's son were in a lunatic asylum.

Such cases as these demonstrate how very trivial a cause of nerve irritation may disarrange the balance of nerve function when its equilibrium is unstable, because of some latent and unsuspected nerve condition, congenital or acquired, and show how guarded prognosis must be in cases of injury to the back, where a disturbance of the spinal cord, not at all amounting to what we mean by concussion, may inaugurate permanent or fatal disorder if certain conditions happen to exist.

But when the remote effects of spinal injury cannot be attributed to the excitation of pre-existing latent morbid conditions, and when they are not those which are clearly due to inflammation or degeneration of portions of the nervous centres, there is a considerable residuum of results, regarding the pathology of which there still exists much difference of opinion. They are attributed to molecular disturbance of the centres, or of the entire nervous system, and, for want of more exact knowledge regarding their etiology, are grouped together—although doubtless differing widely in their symptoms and causation—under the indefinite term *neurasthenia*. And such conditions, not only chronic, but often permanent, in consequence of the want of a more appropriate term in the nomenclature, ultimately find their way into statistical returns under the still more indefinite term *debility*; to which, although so indefinite—perhaps, indeed, by reason of its indefiniteness—is attributed over one-eighth of the final discharge of soldiers by invaliding for permanent unfitness for service.

It is extremely probable that a large proportion of the cases so classified in army statistics—apart from those classified as nervous diseases—are due to molecular nerve changes, resulting from accidental mechanical causes too trivial or too transient for the connection between the resulting neurasthenia, and such accidents as excitors of it, to be traced. Of such obscure and untraced excitors of molecular nerve disturbance, accidental mechanical spinal irritation, which may have caused but slight trouble at the time of its occurrence, probably forms no inconsiderable part.

APPENDIX No. XII.

REPORT ON ENTERIC FEVER AMONGST BRITISH TROOPS ON ACTIVE SERVICE IN INDIA.

By Surgeon-Captain W. T. SWAN, M.B., Army Medical Staff.

I have chosen this as the subject of my essay from the fact that its importance was very strongly brought home to me last year when I accompanied the force which started from Peshawar for the purpose of relieving Dr. Robertson in Chitral. I was attached to No. 1 British Field Hospital, 1st Brigade, Chitral Relief Force. The British troops belonging to this brigade were the 1st Battalion King's Royal Rifle Corps and the 1st Battalion Bedfordshire Regiment, and amongst both of these regiments enteric fever occurred with severity. The mortality from this disease in the Bedfordshire Regiment alone was greater than that caused by wounds in the whole force throughout the campaign. I think this single fact is sufficient to emphasise the importance of this complaint. Taking into consideration then that such expeditions as that for the relief of Chitral are of almost annual occurrence in India, let us see if we can discover what the causes of the epidemic of enteric fever may have been, and how far it is possible to obviate such causes.

Taking again this, our latest Indian war, as my text, I would give a brief account of the history of the 1st Brigade in so far as it relates to the outbreak of this fever.

The 1st Brigade marched from Peshawar on the 28th and 29th of March, 1895. At that time there were no cases of enteric fever in the Station Hospital, Peshawar. Of the two British regiments the men of the Bedfordshire Regiment were of far better physique than those of the King's Royal Rifles. In fact they were a splendid body of men. The strength of the battalion was 800 non-commissioned officers and men.

The men of the King's Royal Rifles, on the other hand, were, as a rule, of poor physique, and had been so debilitated by the effects of two hot seasons in Peshawar that it was a question for some time if they could be permitted to go on active service at all. During the first few marches the propriety of having allowed them to do so appeared very doubtful. The men, though very keen to get to the front, fell out of the ranks in crowds, and lay about the sides of the road utterly exhausted. At the end of the third march the regiment resembled a body of mounted infantry, so many men had fallen out and had to be brought along on ponies and mules. The regiment marched from Peshawar with a strength of 801 non-commissioned officers and men.

After the fights at Malakand and Khar on the 3rd and 4th of April, the 1st Brigade was ordered to remain behind in the Swat Valley, which at Camp Khar is over 2,000 feet above sea level. The health of the British troops was at first very good, but with the increasing heat of the end of April the men, who were much crowded together in small single fly tents, began to suffer from malarial fever, and enteric fever soon made its appearance amongst them.

The first undoubted case of enteric fever, a man of the Bedfordshire Regiment, was admitted to hospital on the 29th of April. At this time the sick were sent to the base of operations as soon as it appeared likely that the men would not quickly be fit for hard work again. In this way some cases of enteric fever where the diagnosis was at the time doubtful were transferred to the hospitals on the lines of communications, and were not shown as cases of this disease in the Field Hospital returns. On the 6th of May the first case of enteric fever from the King's Royal Rifles was admitted to hospital.

It was arranged that the British troops of the 1st Brigade should summer in the hills surrounding the Swat Valley, and on the 15th of May the King's Royal Rifles marched from Camp Khar, and reached the village of Birau in two days. Birau is a small and dirty village at the foot of the Larum Pass, and is about 4,000 feet above sea level. The camping ground was cramped and the ground extensively polluted. The water supply was good and abundant from streams which came down from the mountains above the camp. The King's Royal Rifles immediately set about making a road to the top of the Kotal; a couple of companies marched at once to the top, two more were encamped about half way up, and the remainder stayed at Birau, so that the road making was taken up in sections. The labour was exceedingly arduous, and in all three detachments cases of enteric fever occurred within a week, resulting in two deaths. On the 28th of May the whole regiment reached the top of the Laram Kotal, 6,500 feet above the sea. On the 1st of June the Bedfordshire Regiment arrived at Laram, and occupied the ground on which the Rifles had been encamped, while the latter moved away along the ridge some two miles to a new camp at a place called Dostai.

In the month of May the following was the incidence of enteric fever:—

——	Admissions.	Deaths.
Bedfordshire Regiment - -	7	5
King's Royal Rifle Corps - -	11	5

Throughout the months of June, July and August the epidemic continued, being more severe amongst the men of the Bedfordshire Regiment. In that regiment there were 128 cases with 28 deaths between the 29th of April and the 24th of August. On the latter date, as the disease showed no signs of decreasing, the regiment left Laram and returned to India.

The last case of enteric fever in the King's Royal Rifles was admitted to hospital on the 23rd of August. Between that date and the date of their departure for India on the 28th of September no fresh cases occurred. Between the 6th of May and the 23rd of August they had 44 cases of enteric fever with 11 deaths.

On the 4th of September the Buffs arrived in Larum from Jaubatai. They encamped on the ground which had been vacated by the Bedfordshire Regiment. Enteric fever attacked them almost immediately, and they had 11 cases before they were sent back to India on the 14th of September.

In examining the history of this epidemic one is struck by the fact that all three regiments—the King's Royal Rifles, the Bedfordshire Regiment, and the Buffs—encamped on the Laram camping ground were quickly affected by enteric fever. The Rifles brought it with them from Khar, and so, in the first case, did the Bedfordshire Regiment, while the Buffs appear to have contracted the disease on the ground. In all cases the men had been exposed to hardships and were much run down when the fever attacked them.

The Water Supply appeared to be beyond suspicion. It came from a spring which bubbled out from a rock near the top of the Laram Kotal and was most carefully guarded from pollution. The ground above it was not contaminated in any way. The water was brought to the troops in pukkhals, or large leather bags, on mules, or else in mussuks by bhistis. It is probable that the water was contaminated by carriage in these pukkhals and mussuks.

The Milk Supply was obtained for the most part from goats. A little came from cows and buffaloes. It was impossible to supervise the milking of these animals which were scattered over a large expanse of precipitous hillside. The milk was brought in from long distances in filthy unglazed earthen vessels. It was always boiled before use. Its use was forbidden to the troops for some time during the height of the epidemic, but this measure had no effect in checking the incidence of the disease. In the valley where the milk was got from cows, I endeavoured to secure a pure supply by offering a better price for milk drawn from the cows in my presence. The people of the country declined to bring their cows near camp, and when I went to their villages to buy the

milk milked direct from the cow I found that the women did all the milking and their Mussulman husbands objected to their being seen at work by strangers.

Overcrowding.—That overcrowding in the tents took place is undoubted, and I am inclined to think that many cases arose from the close contact of men suffering from the initial stages of the disease with their comrades. In this connexion it is remarkable that no case of enteric fever occurred amongst the officers at Laram and they had the same water and milk supply as their men.

Disposal of Excreta.—At Laram, firewood being abundant, an incinerator was built which disposed of the dejecta of the sick in hospital. The latrine trenches of the troops and followers were on the slopes beneath the camps well away from the water supply.

Let us now consider what steps may be taken in future expeditions to avoid epidemics of enteric fever amongst British troops. That the cause of enteric fever is almost ubiquitous in India is unfortunately beyond dispute. I am inclined to believe that the curious immunity of the adult natives of India from attacks of enteric fever may be due to the fact that in infancy and childhood most of those who can contract the disease do then take it; that, as a rule, it is of a mild type, and, like enteric fever elsewhere in children, it is remittent and so it is not recognised. If this be so, the wide prevalence of the enteric microbe is not difficult to understand. I am afraid that, in spite of all precautionary measures, enteric fever will continue to occur amongst troops exposed to the vicissitudes of active service. The enteric bacillus is widely disseminated, the men, from overwork, exposure and inferior food, badly cooked, and taken at irregular periods, suffer from a general lowering of their vitality and power of resistance to disease. One of the first effects of these evils is a diminution of the digestive powers. When a large number of people partake of food or drink contaminated with the poison of cholera or enteric fever, why do not all of them get these diseases? I believe that in many cases the reason is that the germs of disease are destroyed by digestion, and I think that in a properly working digestive apparatus we possess one of our most valuable safeguards against the attacks of enteric fever. On this account therefore, the good quality of the food, the sufficiency of its supply, and its proper cooking are most important. Overcrowding in tents should, of course, not take place, but in a relief expedition, or a forced march, this cannot be avoided. The same holds good with regard to over-fatigue—it is unavoidable.

In the matter of milk supply, I would advocate the plan of refusing to use any of the milk the country supplies. It is useless attempting to bring milch cows or goats with a force; the animals do not march well, and in a very short time go dry. Soldiers, as a rule, use very little milk in any form and the little they do take in their tea could conveniently be of the condensed variety. For the use of the sick in hospital also, tinned milk alone should be used. With regard to the very important matter of a pure water supply, we must rely chiefly on filtering to ensure its purity. It has been proved that the Pasteur filter alone of the filters at present in the market can be relied on to free water from all disease germs, and all drinking water, no matter from how apparently uncontaminated source, should be filtered through it. The question to be solved is how to provide a Pasteur filter capable of withstanding the hard usage it is sure to receive on field service. It must be strong and portable. There are, in the main, two patterns of this filter, one which works without pressure, and the other which filters under pressure, either from an air pump or force pump. The filters which work without pressure are preferable; the filters worked under pressure have a much larger yield, but they require so much labour, that on active service they would not be at all popular. After an exhausting march they would almost certainly not be used at all. The larger sizes are so heavy and bulky that they would be exceedingly troublesome to carry, and frequently it would be simply out of the question to bring them with the troops. They would be useful at all standing camps, where a permanent staff of coolies could be engaged to work them. Of the Pasteur-Chamberland filters, which work without pressure, there is one very well designed, with an output of six gallons a day, which is packed in a convenient case fitted with canvas buckets for unfiltered and filtered water

respectively. The chief objection to this pattern is its expense; it costs, retail, in India about 90 rupees. While on the march it would probably not be in use for more than 12 hours, yielding three gallons of filtered drinking water in that time—a supply not more than sufficient for eight men in the tropics. I have examined Surgeon-Lieut.-Colonel Pratt's pattern of Pasteur filter, and find it useless. On blowing down the tube into water air bubbles escape freely, and where air can thus easily escape disease germs can as easily enter. The fine small rubber washers are also very difficult to apply satisfactorily to the ends of the little cylinders.

In India the bhisti, or water carrier, cannot be dispensed with, although his mussuk is the cause of much disease. How to replace the strong leather bag, so convenient to carry, is a difficult question to answer. The mussuk cannot be kept clean and cannot be disinfected, it will certainly contaminate any water put into it and therefore cannot be used for carrying drinking water after filtration. The bhisti is one of the most hard working Indian camp followers, and the same man has to bring water for drinking, cooking, and ablution purposes, and also drinking water for animals, in the same mussuk. I think he must be allowed to retain his mussuk for the purpose of bringing in the water, but when the water is filtered it should be stored in small casks fitted with taps. From these casks every soldier's water bottle should be filled previous to marching in the morning, and a supply to replenish the water-bottles on the march should be taken on mules. A small cask to contain 4 gallons might be constructed which could be carried by the bhisti over ground which was too bad for mule transport. The mussuk itself might have a single cylinder filter candle lashed to its mouth and the water in it filtered into casks; by placing weights on the mussuk any required pressure could readily be obtained.

In cases where the supply of water is from stagnant wells or tanks, it can readily be disinfected by adding quicklime, or, better still, permanganate of potash.

Mr. Hankin, Chemical Examiner and Bacteriologist at Agra, found that the addition of lime in the proportion of 2 parts to 1,000 of water reduced the number of microbes from 30,000 per cubic centimeter to 400 per cubic centimeter one hour after it had been thoroughly mixed with the water. The objections to the use of lime are that it is not always obtainable in a fresh condition, that it is not of much use unless it is fresh, and that it needs to be well mixed with the water, which is a kind of work which, in practice, is easily shirked. These objections are especially valid on active service. Mr. Hankin has more recently employed permanganate of potash for the disinfection of wells and considers that it has many advantages over lime. It acts not so much as a disinfectant as by destroying organic matter which might act as food for microbes. In oxidizing organic matter it is decomposed, forming a precipitate of manganic oxide in which microbes are probably entangled, and, in cases in which the water is not disturbed, will tend to settle to the bottom of the well. One or two ounces of permanganate is enough for an ordinary well; it should be mixed with water in a vessel and poured into the well at night. If the well contains much organic matter the faint crimson colour will have vanished by next morning.

In all these precautionary measures the chief bar to success is the carelessness and ignorance of the British soldier himself. Against this we must struggle, and also endeavour to enlist on our side the cordial co-operation of the regimental officers.

APPENDIX No. XIII.

ON THE PATHOLOGY AND THERAPEUTICS OF SCURVY.

By A. E. WRIGHT, M.D. (Dublin), Professor of Pathology, Army Medical School, Netley.

We shall do well to commence our study of scurvy by considering, first, the facts in connexion with the ætiology, symptoms, and treatment of scurvy which are known to us by clinical experience; and, secondly, the questions connected with the pathology, diagnosis, and treatment of the disease which still await solution.

Summary of our present knowledge of scurvy. Causation.

We may deal first with the facts that have been learned by clinical experience.

Causation.—Clinical experience has shown that scurvy is produced by a dietary which is poor in fresh vegetables and rich in cereals and preserved meats. It has further demonstrated that scurvy is aggravated by all exposure to cold and damp.

Symptoms.

Symptoms.—Clinical experience has shown that this disease manifests itself, first, in a marked lassitude and in an extreme enfeeblement of the constitution; secondly, in "actual hæmorrhages," such as bleeding from the gums and other mucous membranes, purpuric eruptions, and sub-periosteal and intermuscular blood-extravasations; thirdly, in "serous hæmorrhages," such as œdema of the cellular tissue (especially of the legs and scrotum), joint effusions (especially in the ankles and knees), effusions into serous membranes (especially effusions into the pleura), and in intestinal effusions (clinically evidenced by diarrhœa); fourthly, in a marked tendency to every variety of suppurative processes.

Treatment.

Treatment. Clinical experience has shown that the disease is alleviated by the free exhibition of green vegetables and fruit juices, by warmth and dry surroundings.

Important lacunæ in our knowledge of scurvy.

This is the sum and substance of our knowledge on the subject of scurvy. It will be recognised on reflection that it is incomplete in the following respects:—

(1.) *Our knowledge is incomplete, first, inasmuch as it does not furnish us with any explanation of the fact that a regimen consisting entirely of preserved meats and cereals, or of either of these separately, induces the symptoms of scurvy.*

Our ignorance on this heading hampers us very much in our selection of a "non-scorbutic" dietary. Having no sort of scientific principle to work by in making our selection of food-stuffs, we have to guide ourselves entirely by the uncertain light of empiricism.

(2.) *Our knowledge of scurvy is incomplete, secondly, inasmuch as it does not furnish us with any absolutely trustworthy criterion of scurvy.*

In view of the long train of symptoms which has been detailed above this statement may present a certain aspect of paradox. None the less, it may be absolutely depended upon, for all the symptoms, which have been enumerated above, manifest themselves in connexion with certain severe cases of hæmophilia, and are rightly considered mere manifestations of a serious defect of blood-coagulability. They are not, therefore, as is commonly held, in any way pathognomonic of scurvy. It is obvious from this fact that a diagnosis of scurvy which is based solely upon the presence of these symptoms cannot be absolutely depended upon. Such a diagnosis only becomes assured when it can

be shown, either that these symptoms are directly traceable to a scorbutic dietary, or that relief is obtained from an anti-scorbutic treatment. Through failure to appreciate the necessity of attending to this point, cases of hæmorrhagic marasmus with spongy gums, which are in reality dependent either upon tertiary syphilis or upon chronic malaria, are not unfrequently mistaken for cases of true scurvy.

(3.) *Our knowledge of scurvy is incomplete, thirdly, inasmuch as it does not furnish us with any thoroughly satisfactory method of treating scurvy.*

This statement also bears a paradoxical aspect. For it appears at first sight to be irreconcilable with the fact that sea-scurvy has practically disappeared owing to the administration of lime-juice and a better provision of fresh vegetables on ship-board. The statement is, however, abundantly justified, *first*, by the fact that the overland transport of fresh vegetables and lime-juice involves great and at times perfectly insuperable difficulties; *secondly*, by the fact that lime-juice contains, in addition to an anti-scorbutic principle, a constituent which aggravates the defect of coagulability, which, as we have seen exists in scorbutic blood; *thirdly*, by the fact that the scorbutic condition, when it is well pronounced, appears to be only very slowly and very incompletely amended by the exhibition of lime-juice and fresh vegetables. The writings of the older clinicians are replete with testimony to these facts. It will suffice to quote the testimony of Lind, who notes (1) that some 10 to 20 per cent. of the cases of scurvy which were received into Haslar Hospital failed for a period of many weeks after landing to show any improvement under the influence of large quantities of lime-juice and fresh vegetables; (2) that even in the case of patients whose symptoms were rapidly alleviated by the exhibition of fresh vegetables and lime-juice, it was not by any means uncommon to see fresh crops of purpuric spots coming out for weeks after this treatment had been inaugurated; (3) that patients whose symptoms disappeared under the influence of the lime-juice and fresh vegetable treatment were extremely prone to relapse as soon as they were sent back to duty at sea. It is obviously legitimate to conclude from these facts that the scorbutic condition, and its accompanying defect of blood-coagulability, are only slowly and incompletely amended by the customary methods of treatment.

The lacunæ in our present knowledge of scurvy having thus become manifest, we may now turn and consider the question.

Why is it that a dietary consisting entirel of cereals and preserved mea inouces the symptoms of scurvy ?

I. *Why is it that a dietary consisting entirely of cereals and preserved meat induces the symptoms of scurvy?*

The answer to this question must be sought from physiological experiment.

Walther's exp rimeuts on th effect of the ingestion of mineral acids.

Now it so happens that we have not far to seek for a body of physiological experiments, which, though they were not undertaken with any thought of elucidating the pathology of scurvy, are yet experiments which throw a very important light upon the pathology of this disease. The experiments in question were instituted by Walther under Schmiedeberg's direction. The object which the experimenters had in view was to determine the effect of administering mineral acids to animals.

Both dogs and rabbits were employed for these experiments.

We may deal, first, with the results which were obtained upon rabbits. These may be briefly summarised as follows:—

Effect of the ingestion of mineral acids upon rabbits.

It was found that when a mineral acid, such as hydrochloric acid, is administered to a rabbit the results vary according to the dose. When the amount of ingested acid is moderate the acid becomes completely neutralized by the surplus of alkaline salts which is normally present in the food. Under these circumstances the rabbit suffers no ill-effects from the acid ingestion. When, however, the quantity of acid is increased until the quantum of ingested acid is in excess of what can be neutralized by the alkaline salts of the food, it is found that the excess of acid neutralizes itself by entering into combination with those alkaline salts upon which the alkalinity of the blood depends. Under these circumstances the rabbit begins to exhibit symptoms of acid-intoxication. If the amount of acid is considerably in excess of what can be neutralized by the alkalies of the food, the animal's condition becomes very serious. It refuses to eat and falls into a condition of extreme marasmus. Such a rabbit, if untreated, finally succumbs as a so-called "acid rabbit." When the animal dies his blood is found to have lost nearly all its alkalinity. (Death invariably takes place before the blood becomes

actually acid.) It is further found that the animal's blood has become extremely poor in carbonic acid. This is due to the fact that the blood loses its power of taking up carbonic acid from the tissues as soon as it is deprived of the alkaline salts, which under normal conditions function as the carriers of carbonic acid. Lastly, it is found that the blood of the acid-intoxicated animal has become almost incoagulable. This is no doubt due in part to the fact that the blood is impoverished in carbonic acid. In part it is also probably due to the fact that the hydrochloric acid which has been ingested has combined with the calcium salts of the blood, and has, by rendering them more soluble, favoured their excretion in the urine.

ct of the stion of neral acids n dogs.

Entirely different results are obtained when mineral acids are administered to dogs.

In the first place, there can be no question in the case of the dog of any neutralization of acid by the alkaline salts of the food. For the dog, like all other carnivora, feeds on animal food, which, as we shall presently see, contains an excess of acids over alkalies.

In the second place, the mode in which the ingested acid is neutralized in the dog's organism is found to be entirely different from the mode in which ingested acid is neutralized in the rabbit. In the rabbit, as we have seen, acid is neutralized at the expense of the alkaline salts of the blood. In the dog ingested acid is neutralized by ammonia. The difference is all important. In the one case the alkali which is applied to the neutralization of acid is abstracted from a comparatively small stock of alkaline salts, which forms an essential constituent of the blood, and which cannot consistently with safety be diminished. In the other case the alkali, which is applied to the neutralization of acid, is a mere waste product, which, at any rate in the dog, is always available in sufficient quantity to meet all the demands that are made upon it.

In consequence of this faculty of applying the waste products of the body to the neutralization of mineral acid, the dog, unlike the rabbit, bears up perfectly well against even a very considerable acid-ingestion. Contrary to what happens in the rabbit the ingested acid does not in the dog either rob the blood of its alkaline salts or diminish its coagulability.

ct of the stion of eral acids n man.

Man occupies with respect to his power of neutralizing acid a position which is intermediate between that of the dog and the rabbit. He differs from the rabbit in possessing a certain faculty of neutralizing acid by means of ammonia. He is, therefore, able to bear up without injury against a moderate degree of acid-intoxication. He differs, on the other hand, from the dog in the fact that there is a very definite limit to his power of neutralizing acid by ammonia. If he is plied with acids beyond this point the alkalinity and coagulability of his blood will diminish, and will finally succumb to the acid-intoxication.

In order to see the particular application of this fact to the pathology of scurvy, we must now turn aside and consider the question of the acidity and alkalinity of our more common food-stuffs.

ssification of stuffs in ordance h their ective ity or linity.

Our food-stuffs may be broadly classified for present purposes into three categories:—(1) *Alkaline food-stuffs* (*i.e.*, food-stuffs which leave upon incineration a distinctly alkaline ash); (2) *neutral food-stuffs* (*i.e.*, food-stuffs which leave upon incineration a neutral or almost neutral ash); (3) *acid food-stuffs* (*i.e.*, food-stuffs which leave upon incineration a distinctly acid ash).

In the class of *alkaline food-stuffs* may be ranged all the vegetable substances which are commonly grouped together under the title of "fresh vegetables," *i.e.*, all green vegetables, and further all tubers and roots. Again we may range under the alkaline food-stuffs all fruits and fruit juices. Even such eminently acid fruits as limes and lemons fall into the category of alkaline food-stuffs, inasmuch as the constituent vegetable acids of these fruits are entirely resolved into carbonic acid and water in the heat of the flame, and have therefore no influence on the character of the ash. Further, we may range under the alkaline food-stuffs the blood and milk of all mammals, especially the milk of the herbivora.

The most important food-stuffs which fall into the category of the *neutral food-stuffs* are the various sugars and the vegetable and animal fats and oils.

In the category of the *acid food-stuffs* may be ranged all cereals and all meats, for these food-stuffs contain considerably more mineral acid than can be neutralized by the alkaline bases which enter into their composition.

When we reflect upon these facts we see that they furnish us with an explanation of the differences in the faculty of acid-neutralization which are found in the animals which feed on these various classes of food-stuffs.

We have in the first place a class of *herbivora*. In these, as we have seen, there is no special provision for the neutralization of acid. We now see that this is in conformity with the fact that these animals, so long as they feed exclusively upon herbage, have no need for any such provision, seeing that they are feeding upon alkaline food-stuffs which continually replenish the blood with alkaline salts.

Adjustment the herbivo organism to alkaline die

We have further a class of *carnivora*. In these animals, as we have seen, there exists a very effectual provision for neutralizing acid by means of the waste ammonia of the body. Without some such provision as this for keeping the blood alkaline a class of carnivora could not well have come into existence.

Adjustment the carnivo organism to acid dietary

Lastly, we have the case of *man*. In man, as we have seen, the same sort of provision for neutralizing acid exists as exists in the carnivora. We can now appreciate that this is in conformity with the fact that man under normal circumstances feeds on a dietary in which the acid food-stuffs preponderate over the alkaline food-stuffs. But, on the other hand, we saw that in man the provision which exists for neutralizing acid is not by any means as effective as in the carnivora. We now see that this is in conformity with the fact that under ordinary circumstances there is in our dietary a comparatively small preponderance of acids over alkalies. This is due to the fact that as we are continually neutralizing some of the excess of acid, which we ingest in the form of acid food-stuffs, by the excess of alkali, which we ingest in the form of alkaline food-stuffs.

Adjustment the human organism to mixed acid alkaline die

Our next step, after we have thoroughly digested these facts, must be to consider carefully what would inevitably happen if this process of setting off the alkalies of our vegetable food against the acids of our animal food were to be forcibly interrupted by the omission of all fresh vegetables and fruits from our dietary.

Reflection s that a grad acid-intoxic would in m supervene u n withdraw all the alkal food-stuffs.

It is obvious to reflection that under these conditions we should inevitably lapse into a condition of acid-intoxication.

But, again, experience shows that it is precisely under these conditions that we lapse into a condition of scurvy.

Experience s that scurvy supervenes i man when a the alkaline food-stuffs a withdrawn.

We may, therefore, at least provisionally conclude that scurvy is a condition of acid-intoxication.

This conclusion has a very important bearing upon its differential diagnosis and upon its treatment.

Before, however, proceeding to base either a method of diagnosis or a method of treatment upon this theory of scurvy, it will be expedient further to test the correctness of our inferences by considering whether this theory of scurvy will suffice to explain all the symptoms which come under observation in cases of scurvy.

Does this ac intoxication theory satis factorily explain all t symptoms o scurvy?

It will hardly be necessary in this connexion again to point out, for I have already pointed it out in the introduction to this paper and also elsewhere,* that, on the one hand, purpura, bleedings from mucous membranes, intramuscular extravasations, and such like; and, on the other hand, œdema of the cellular tissue, pleural and serous effusions into joints, serous cavities and intestinal tract, are generally nothing more nor less than manifestations of an existing defect of blood-coagulability. Neither will it be necessary again to point out that a tendency to suppuration is often only one of the manifestations of a condition of extremely defective blood-coagulability.†

We have merely to note here that the occurrence of one and all of these symptoms in scurvy is readily explicable on the assumption that scurvy is an acid-intoxication which eventuates in a defect of blood coagulability.

In connexion with the suggestion that defect of blood-coagulability may be due to a deficiency of lime salts in the blood, it is perhaps worth noting that the excessive erosion of bones, the absorption of already calcified callus, the spontaneous separation of rib cartilages from the sternum, and, finally, the

* *Lancet*, Sept. 19, 1896.

† I may, however, note in passing that in a case of defective blood-coagulability which came under my notice, not only was there severe œdematous urticaria, but there was also such a pronounced tendency to suppuration, that every accidental scratch gave rise to suppuration, and every blister that was raised on the hands by rowing filled up with pus instead of with clear serum.

deficient post-mortem rigidity which are recorded by the older writers as occurring in exceptionally severe cases of scurvy, are one and all suggestive of an extraction of lime salts from both bone and muscle under the influence of an acid-intoxication. The frequent association of infantile scurvy with rickets is another fact which points in this direction.

Again, it is worth noting the fact that cold which, as we have seen, aggravates all the symptoms of scurvy, also aggravates the defect of blood-coagulability in hæmophilic patients, and in others who suffer from diminished blood-coagulability, and thus predisposes to bleedings and to serous* hæmorrhages.

t explains satis- ily.

It will thus be seen that all the symptoms of scurvy without exception are perfectly consistent with the theory that scurvy consists essentially in an acid-intoxication.

it satis- ily explain ierapeutic s obtained e various ods of ment?

We may further test this theory by considering whether the therapeutic results which have been obtained in scurvy are or are not consistent with this explanation. For obviously, if our theory of scurvy is correct, such methods of treatment, as have been employed in connexion with scurvy, ought to be effectual or ineffectual, just according as they are appropriate or inappropriate to the treatment of a condition of acid intoxication.

The first of these methods which suggests itself for consideration is the *treatment of scurvy by the exhibition of fresh vegetables.*

We need not, however, delay long over this method. It will suffice us to note in the first place that this method of treatment is eminently effectual in practice, and in the second place that it is a method which is appropriate to the relief of acid-intoxication, inasmuch as the vegetable substances which are exhibited are substances which contain an excess of alkalies over acids.

We may next consider the *treatment of scurvy by lime-juice.* Here, again, we have a method which renders undeniable service in the prophylaxis, and to some extent also in the treatment, of scurvy. And here, again, in consonance with the theory of scurvy which has been enunciated, we find that lime-juice is a substance which upon incineration yields an alkaline ash.

In reality this fact sufficiently disposes of the whole question of the anti-scorbutic influence of lime-juice.

None the less, it may be well not to dismiss the subject without considering some of the issues that have been raised in connexion with this question.

We may note, first, the fact that lime-juice is something more than a mere alkaline food-stuff. It is a substance which contains as essential constituents, in the first place, some 7 to 8 per cent. of citric acid, and further some 0·3–0·4 per cent. of ash (chiefly potash).

In view of this preponderance of the citric acid over alkaline bases, the objection may not unnaturally suggest itself, that we are perhaps not justified in referring the anti-scorbutic properties of the natural lime-juice to the alkaline potash salts instead of to the citric acid. This objection is, however, invalidated by the fact that clinical experience has definitely shown that citric acid taken by itself is of no avail whatever against scurvy.† When this has once been established it would appear inevitably to follow, by exclusion, that the anti-scorbutic effect of lime-juice must be referred to the potash salts which enter into its composition.

But even this argument by exclusion, in spite of its all but absolute conclusiveness, appears to be of no avail against the fact that it has been established, not only by the experience of North American lumberers, who feed on meat which has been corned with nitrate of potash, but also by the results of experiments with nitrate of potash (which were instituted with the direct object of testing Dr. Garrod's theory of the causation of scurvy by a paucity of potash salts in the blood), that potash salts as such have no anti-scorbutic power. It is, however, hardly necessary to point out that nothing that may be either proved or disproved in connexion with *mineral acid salts* of potash has any application whatever to the *vegetable acid salts* of potash

* Chilblains are perhaps the most common example of a serous hæmorrhage which is conditioned by cold.

† It was hardly necessary to wait for clinical experience to establish the fact, for it is obvious to reflection that a substance, such as citric acid, which is resolved in the body exclusively into carbonic acid and water, could not by any possibility contribute any remedial element to the blood of a scorbutic patient.

which are contained in [illegible] nitrates, and [illegible] organism from vegetable acid salts [illegible] sodium chloride [illegible] acid salts are [illegible] only interest [illegible] lies, therefore, [illegible] incinerated [illegible] observed that [illegible] reality [illegible] scorbutic properties [illegible] which enter [illegible]

Lastly, we [illegible] *scurvy by starvation* [illegible]

This [illegible] Samoyedes, [illegible] reindeer [illegible] with the [illegible] the crew [illegible] 1896. It [illegible] ences, appear [illegible] meat with [illegible] vegetable [illegible]

We have [illegible] and to see whether [illegible] intoxication.

We need [illegible] For, on turning [illegible] ring to the [illegible] perfectly clear [illegible] comparable [illegible] here a simple [illegible] Further, when we [illegible] tion of their [illegible] material, which [illegible] foodstuffs, was [illegible] in the form of [illegible]

We thus see that [illegible] complete explanation [illegible] from scurvy, although [illegible]

We may now briefly sum up the conclusions which have been arrived at in the course of our survey of the different methods of treating scurvy. We have on the one hand seen that there are only three methods which have been definitely shown to exert an influence in warding off and ameliorating the scorbutic condition. Each of these methods consists essentially in the administration of an alkaline foodstuff: we have seen that [illegible] tables, and lime-juice all come under this denomination. Of each of these methods it may, therefore, be asserted that it is a method which is calculated to ward off and ameliorate a condition of acid-intoxication.

Why certain methods are [illegible] to those [illegible] scurvy.

On the other hand, we have incidentally considered two other methods of treating scurvy, which have been tried, and have been discarded as useless. The methods in question are, first, the treatment of scurvy by citric acid, and further, the treatment by mineral salts of potash. Each of these methods has been shown to be a method of treatment which would be of no possible avail against an acid-intoxication.

We are consequently definitely confirmed in our belief that scurvy is a condition of acid-intoxication.

II. *Differential Diagnosis of Scurvy from other Morbid Conditions associated with Defects of Blood-coagulability.*—Our next task must be to find some differential criterion by the help of which we may discriminate true scurvy from other diseases which are characterised by a precisely similar defect of blood-coagulability. In other words, we have to endeavour to solve the [illegible]

Differential diagnosis of scurvy from other conditions of defective blood coagulability

following question: given a case which is clinically characterised by all the symptoms which are commonly regarded as pathognomonic of scurvy, how shall we determine whether the symptoms from which the patient is suffering are or are not referable to a condition of scorbutic acid-intoxication?

Presence or absence of scurvy can be detected by estimating the "total acid" of urine.

When the question has once been thrown into this form the answer immediately suggests itself. The existence or non-existence of a condition of acid-intoxication can always be determined by a determination of the total acid which is being excreted in the urine.

It may perhaps be profitable to consider the methods by which this determination can be made.

We must begin by endeavouring to disabuse ourselves of the idea that we can determine the degree of acidity of the urine by noting its reaction to litmus paper. What litmus paper discloses to us is merely the amount of *free acid* (or, to speak more accurately, of losely combined acid) which is present in the urine. But there exists in every urine, in addition to this free acid, another quantum of acid which has been excreted in the form of neutral combinations with bases. This acid, which we may conveniently speak of as the *neutralized acid* of the urine, is obviously inappreciable to litmus paper, and will, therefore, elude us when we apply our litmus test.

"Total acid" is the sum of the "free" and of the "neutralized" acid.

But obviously, since we are here concerned with determining the total daily excretion of acid in the urine, we must not allow this quantum of acid to elude us. We must, if we desire to have a true measure of the acidity of the system, take into our account not only the free but also the neutralized acidity of the urine.

This, as a matter of fact, involves our undertaking two separate acid estimations.

The method of conducting these acid estimations is briefly as follows:—

Method of determining "free acid" of urine.

(*a.*) *Determination of the Free Acidity of the Urine.*—In order to determine the amount of free acid that is present in the day's portion of urine,* we take an aliquot portion of that urine (say, a hundredth, of the day's portion)† and tritrate it (using a little phenolphthlein as an indicator) with an alkaline decinormal solution.

The number of cc. of decinormal solution employed to neutralize will then evidently indicate an amount of acidity in the urine corresponding to that contained in an equal number of cc. of decinormal oxalic acid solution. The free acidity of the sample of urine is, therefore, found by multiplying the number of cc. of decinormal alkali employed by 0·0063. One hundred times this amount (assuming, of course, that we have been operating upon $\frac{1}{100}$th of the day's portion of urine) will then be the amount of oxalic acid which will exactly correspond to the quantity of free acid which is contained in the day's portion of urine.

Method of determining "neutralized acid" of urine.

(*b.*) *Determination of the Neutralized Acidity of the Urine.*—This estimation would at first sight appear to involve an estimation of the total salts of the urine, and a comparison of these with the total acids and alkalies of the food. For practical purposes, however, nothing of this kind is required. We can determine the amount of acid which is neutralized in the system with quite sufficient accuracy if we neglect the relatively insignificant quantum of acid which has entered into combination with soda and potash, and take into account only the larger quantum of acid which has entered into combination with ammonia.

We can readily estimate the amount of acid which is passing out in this form by undertaking a quantitative determination of the ammonia which is present in the urine.

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* In order to obtain a complete day's portion of urine, the patient must be instructed to begin the day, say, at 6 or 9 a.m., by emptying his bladder, and to pass all his urine into a separate vessel until the next day at the same time, when he empties his bladder again. To keep the urine from decomposing it will be expedient to introduce a certain measured amount of standard normal sulphuric acid into the vessel in which the urine is to be collected. This addition of standard acid must, of course, be allowed for in the subsequent tritration.

† To facilitate calculation it will be convonient to arrange matters in such a manner that $\frac{1}{100}$th of the day's portion of urine may correspond exactly with some round number of cc., say, 20 or 25 cc. This may readily be arranged, by filling up the day's portion of urine with water until it exactly measures 2,000 or 2,500 cc.

To make this estimation we proceed as follows:—We again take an aliquot portion of the day's urine (preferably one hundredth of the day's portion). We then proceed to make sure, by warming the urine in a test tube over which we have suspended a piece of red litmus paper, that no putrefactive changes have taken place, and that no free ammonia is present. In the event of no free ammonia being present we proceed at once to our estimation.

We place the urine in any convenient shallow dish. Upon a triangle resting upon this dish we suspend an evaporating basin containing a measured quantity (50 to 100 cc.) of decinormal sulphuric acid. We then treat the urine with two to three volumes of milk of lime, and we rapidly cover up the whole air-tight with a bell-jar.

The object of these manœuvres is (1) to expel, by the addition of an excess of fixed alkali, all ammonia which may be in combination with acids in the urine; (2) to allow of the collection of the liberated and evaporated ammonia in a known quantity of sulphuric acid where its presence may afterwards be determined by titration with a decinormal alkaline solution.

In order to secure the evaporation of all the ammonia which is liberated from acid in the urine, this process of titration is not undertaken until 12 hours have elapsed.

The results obtained by the titration are calculated out in accordance with the following considerations:—

The number of cc. of decinormal sulphuric originally introduced into the evaporating basin, less the number of cc. which have to be neutralized by the deci-normal alkali before the neutralization point is reached represent the number of cc. of deci-normal sulphuric which have been neutralized by ammonia which has evaporated from the urine; and obviously this number of cc. of standard acid solution contains an amount of acid which is exactly equivalent to the amount of acid which was neutralized by ammonia in the portion of urine which was employed for the experiment. To determine what that amount of acid is, and to express it in terms of oxalic acid, we have simply to multiply the number of cc. which have been neutralized by vaporized ammonia with 0·0063. This gives us the amount of acid expressed in terms of oxalic acid which was present in the portion of urine employed. When we now further multiply this amount by 100 we obtain the total amount of acid neutralized by ammonia in the day's portion of urine.

The reader has now been put into possession of the methods by the help of which he can determine what amounts of free and neutralized acid are passing out of the system in the urine. He has, however, still to be furnished with the standard by which he is to judge of the results which he obtains by these methods.

The following data will supply the necessary standard.

Normal ou of "free ac

The normal output of free acid in the urine amounts approximately to 2–4 grammes of oxalic acid (Salkowski).

Normal ou of "neutr acid."

In addition to this, the urine contains an amount of ammonia-neutralized acid which may be approximately appreciated at 3 grammes of oxalic acid.

Normal to daily outp acid.

Adding these two amounts together, we obtain as our standard a total daily acid excretion amounting to some 6 grammes of oxalic acid.

What amo divergence this stand will warr diagnosis scurvy?

Having dealt with this point, we pass to consider the further question as to what amount of divergence from this normal standard will warrant us in coming to the diagnosis of scurvy.

To this question no exact answer can be rendered. For we have no information, either as to what is the largest amount of acid which can be ingested without giving rise to morbid symptoms, or as to what is the minimum of free acid which will in man determine the supervention of symptoms of acid-intoxication. Probably it will never be possible to determine these points with any precision. And this for two reasons, first, because the supervention of a condition of diminished blood alkalinity cannot be appreciated by any clinical symptom, and, secondly, because a defect of blood-coagulability, such as is developed in the blood in scurvy, may, unless it is suddenly aggravated by cold or other accidental circumstances, exist in the blood for a very long time before it manifests itself in any clinical symptom.

In default of definite information on these subjects it is obviously impossible to lay down absolute rules for diagnosis. None the less it is possible to lay down certain general principles for our guidance in the appreciation of the results of our acid estimations.

General principles which assist us in coming to a conclusion on this matter.

(1.) An increased excretion of free acid in the urine is a matter of much less serious import than an increased excretion of ammonia-neutralized acid.

This will be obvious when we consider that every gramme of free acid which appears in the urine has been dissociated in the kidney from an equivalent of alkali, and that equivalent of alkali has passed back into the blood. The acid which appears in the urine in the form of free acid is consequently acid which has not diminished the alkalinity of the blood, and which will, therefore, not conduce to the development of a scorbutic acid-intoxication.

On the other hand, every gramme of ammonia-neutralized acid which appears in the urine tells us of a definite diminution of the alkalinity of the blood, for we know that, in addition to the quantum of acid which is passing out in combination with ammonia, there is always another, less easily measurable, quantity of acid which is passing out after having neutralized itself at the expense of some of the fixed alkalies of the blood.

(2.) In every case of acid-intoxication we may expect to find the quantity of acid which is passing out in the form of neutralized acids much greater than the quantity of acid which passes out in the form of free acid.

This expectation is based upon the fact that a large excretion of neutralized acid in the urine involves nothing more than a passive filtration of neutral salts through the kidney, whereas a large excretion of free acid involves a forcible dissociation of acid from its combination with bases.

We need not, however, in this matter content ourselves with expectations based on mere *à priori* reasoning. For many cases have been put on record which completely establish that a urine, which is not notably hyper-acid to litmus paper, may none the less be in the physiological sense an extremely hyper-acid urine.

I may instance a case* which came under my personal observation in which the patient's urine, though not in any way hyper-acid to litmus paper (the quantitative estimation of the free acid was unfortunately neglected in this case), was found to contain an amount of ammonia-neutralized acid which was equivalent to a daily excretion of 17 grammes of oxalic acid.

It is plain from this example that the presence or absence of an acid-intoxication (such as we have assumed to be present in scurvy) cannot possibly be either denied or established a mere testing of the urine with litmus paper.

Therapeutics and prophylaxis of scurvy.

III. *Therapeutics and Prophylaxis of Scurvy.*—We may now pass on from the question of the differential diagnosis of scurvy from morbid other conditions which are characterised by a similar defect of blood-coagulability, to consider, in the light of the acid-intoxication theory of scurvy, the whole question of the prophylaxis and treatment of this disease.

Desiderata in the matter of treatment.

Our best course will be to commence by formulating our desiderata in the matter of treatment.

(*a.*) We desire, in the first place, to find remedial agents, which shall, in the shortest possible time, supply to the scorbutic organism fixed alkalies, in sufficient quantities to replace those which have passed out in the urine in combination with the excessive acid of the food.

(*b.*) We desire, further, to find remedial agents, which shall relieve not only the defect of alkalinity, but also the defect of blood-coagulability from which the scorbutic patient is suffering.

(*c.*) Lastly, we desire to find remedial agents which, in addition to being effective in both these directions, shall, at the same time, be both portable and inexpensive.

These desiderata not realised by present methods of treatment.

Having formulated our desiderata, we have to consider whether our requirements in these three directions are, or are not, satisfied by the remedial agents

* The particulars of this case are given in a note to page 404.

which are at present commonly employed in the treatment and prophylaxis of scurvy.

We have already seen in the introduction to this paper that this is very far indeed from being the case. Criticism of these methods.

We saw there, first, that neither lime-juice nor fresh vegetables fulfil our requirements in the direction of portability. (This is due primarily to the fact that these remedial agents consist not of those active principles (to wit, alkaline salts) of which the scorbutic organism stands in need, but rather of mere raw materials from which the body is capable of extracting a certain quantity of these active principles.)

We saw also that both lime-juice and fresh vegetables have the further defect of being extremely slow in their action. (We can now by referring to the table of food-stuffs which is appended to this paper appreciate that this slowness of action is explicable by the very small excess of alkalies over acids which is found in the ash of most of these substances.)

Lastly, we saw that lime-juice has, in addition to these serious defects, also a further defect, inasmuch as it aggravates, in lieu of remedying, the defect of coagulability which exists in scorbutic blood. (The explanation of this fact becomes clear to us as soon as we reflect on the fact that the citric acid, which, as we have seen, is contained in large quantities on lime-juice, is a decalcifying agent, and, as such, a substance which must operate in the direction of diminishing blood-coagulability.)

With these criticisms we may dismiss the subject of the treatment of scurvy by fresh vegetables and lime-juice.

Our next step will be to consider whether it is not possible to improve upon these methods of treatment. Is it possible to improve upon these methods?

With reference to this point no doubt can exist in the mind of any one who has been a witness of the extraordinarily rapid and apparently complete restoration to health which occurs when an almost moribund, acid-intoxicated rabbit receives an injection of carbonate of soda. For the rapidity and completeness of this restoration to health is in absolute contrast with the slow and incomplete convalescences from scurvy which are described to us in the pages of Lind. It is impossible to interpret this difference except as a result of the difference of the doses of alkali that are administered. In the case of the acid-intoxicated rabbit, where convalescence is rapid and apparently complete, the alkalies are supplied to the blood instantly and in adequate quantities. In the case of the scorbutic man, where convalescence is both tedious and incomplete, the alkali, which is exhibited in the form of lime-juice, is (as a reference to the table at the end of this paper will show) administered in totally inadequate quantities.

This defect in our present methods of treatment can be very simply remedied. In lieu of as at present exhibiting as remedial agents alkaline food-stuffs, which contain only minimal quantities of alkalies, it would be obviously good practice to administer alkaline salts themselves in adequate quantities. Yes, it is possible

There are many salts that can be administered, and ways in which they can be exhibited.

Perhaps the way that would first suggest itself would be to administer either carbonate of soda or carbonate of potash by the mouth. This method would, however, to some extent fail to effect its object in consequence of a conversion of the carbonates into chlorides in the stomach.

A much better way would be to administer by the mouth any of the non-poisonous organic-acid salts of potash and soda.

A variety of salts are available for this purpose. We might employ, to mention only a few examples, either the acetate, or the citrate, or the lactate, of soda and potash, or, better still, the neutral tartrate of soda and potash.

Having selected our vegetable-acid salt, we should have to give that salt in large doses. Thirty to sixty grains of Rochelle salts would be a suitable dose. And we should have to continue giving this dose three times a day until the urine became definitely alkaline. It would probably not become alkaline in any case of scurvy till after the patient had been on the treatment for a certain number of days. During the interim the amount of ammonia- Proposed method of treatment.

neutralized acid in the urine would show a progressive decrease.* And this decrease of the ammonia-neutralized acid in the urine would be indicative of the fact that our treatment was replenishing the blood with soda and potash salts.

But this by itself would probably not suffice to bring about the complete restoration of the patient. We should have, further, to remedy the defect of coagulability. And since this defect of coagulability is, as we have seen, probably at any rate in part dependent upon a paucity of lime salts in the blood, it would be good practice in every case of scurvy to administer 20 grains of calcium chloride *cryst.* three times a day.†

Promised realisation of these desiderata by proposed method of treatment.

The method of treatment which has been here outlined would appear to promise the realisation of all the desiderata which we formulated above.

It promises the realisation of our first desideratum, inasmuch as we have in Rochelle salts a medicinal substance which is eminently appropriate to the relief of a condition of acid-intoxication and to the replenishment of the depleted store of soda and potash salts.

It promises the realisation of our second desideratum, inasmuch as we have in calcium chloride a remedial agent which is eminently appropriate to the relief of the defect of coagulability and to the replenishment of the depleted store of calcium salts.

And our third desideratum is realised, inasmuch as both these remedial agents are inexpensive and eminently portable.

Proposals for prophylaxis of scurvy.

For the prophylaxis of scurvy very much smaller doses of these salts‡ than those indicated above, as appropriate for the treatment of actual scurvy, would be required. Five grains of calcium chloride, and twenty grains of Rochelle salts given daily would probably more than suffice to ward off scurvy.

If the stock of these remedies were to become exhausted in any situation where timber was obtainable a sufficient supply of alkaline salts could always be obtained by making a boiling-water extract of wood ashes.

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* This progressive decrease of the ammonia-neutralized acid in the urine under the influence of an administration of a vegetable-acid salt of potash is well exhibited in observations which are here subjoined in tabular form :—

CASES of ACID-INTOXICATION occuring in Connection with Diabetes.

—	Urine 24 Hours.	React.	Ammonia-neutralized Acid.	Treatment.
1890.	cc.			
Aug. 6th	2,835	Acid.	16·95 grammes.	None.
„ 7th	3,414	„	17·17 „	1·6 gramme (20 grains) citrate of potash t. i. d.
„ 8th	3,414	„	13·43 „	„
„ 9th	2,835	„	10·21 „	„
„ 10th	2,268	„	11·39 „	„
„ 11th	2,268	„	11·39 „	„
„ 12th	2,268	„	10·32 „	„
„ 13th	2,268	„	8·88 „	„
„ 14th	2,268	„	7·84 „	„
„ 15th	2,835	„	—	„
„ 16th	2,268 (*a*)	„	7·14 „	„
„ 17th	2,268 (*b*)	„	8·21 „	3 grammes (45 grains) citrate of potash t. i. d.
„ 18th	1,701	„	5·80 „	„
„ 19th	1,701	„	3·58 „	„
„ 20th	2,268	Alkaline.	—	„

(*a*) For 23 hours. (*b*) For 25 hours.

† In view of the fact that tartrates and citrates form insoluble combinations with lime salts, it would be well not to administer the calcium chloride in conjunction with these salts.

‡ In view of the fact that the Board of Trade regulations enjoin the issue of lime-juice to sailors at sea, difficulties might possibly arise in connexion with the testing of the efficacy of this prophylactic treatment. Possibly these difficulties could be smoothed over by the substitution of a ration of 20 grains of citrate of potash for the 20 grains ration of Rochelle salts. It could no doubt be successfully maintained that a ration of citrate of potash, consisting as it does of the essential anti-scorbutic principle of lime-juice, is a perfectly legal equivalent of a ration of lime-juice.

A TABLE EXHIBITING THE RESPECTIVE ACIDITY AND ALKALINITY OF CERTAIN OF THE COMMONER FOODSTUFFS.

The results which are here tabulated have been calculated out from the ash analyses which are summarised in König's Chemie der Nahrungsmittel, Vol. 2, Berlin, 1880.

Acidity is indicated by the sign + and is expressed in terms of oxalic acid. The quantity of oxalic acid indicated is the equivalent of the amount of acid found in 100 *grammes of the original substance.*

Alkalinity is indicated by the sign — and is expressed in terms of oxalic acid. The quantity of oxalic acid indicated is the quantity required to neutralize 100 *grammes of the original substance.*

Acid (*Scorbutic*) Foodstuffs.	Per cent.	Neutral (*Non-scorbutic*) Foodstuffs.	Alkaline (*Anti-scorbutic*) Foodstuffs.	Per Cent.
*Oats	+1·69	Sugar.	Carrot	−0·61
†Barley	+1·19	Vegetable oils.	Turnip	−0·38
Meat (*ox*)	+0·27	*Animal fats.*	Potato	−0·27
Wheat	+0·25		Onion	−0·25
Eggs	+0·20		*Milk* (*cow*)	−0·17
Rice	+0·10		‡*Blood* (*ox*)	−0·13
Maize	+0·07		Peas	−0·13
			Lemon-juice	−0·12
			Orange juice	−0·12
			Beans	−0·07
			‡*Blood* (*sheep*)	−0·07
			(Deal-wood	−0·06)

* Almost two-thirds of the acid which is contained in oats consists of silicic acid.
† Almost half of the acid which is contained in barley consists of silicic acid.
‡ In estimating the alkalinity of the blood the Fe salts, derived from the hæmoglobin, have been left out of consideration.

APPENDIX

Annual Abstract of Meteorological Observations taken

NETLEY. Lat. 50° 51′ N.

Month.	Pressure—Corrected and reduced to 32° Fahrenheit.	Air Temperature.								Tension of Vapour.	Relative Humidity.		
		Mean at 9 a.m.	Mean daily.	Means of		Abs. Min.		Abs. Max.			Per Cent.	Minimum.	
				Min.	Max.	Temp.	Day.	Temp.	Day.		Mean.	Per Cent.	Day.
January	29·615	34·2	35·6	24·2	43·1	17·0	11th	63·2	16th	·175	79	54	30th
February	29·974	28·9	29·9	20·7	39·0	9·0	9th	50·0	23rd	·138	72	40	13th
March	29·677	42·1	42·7	32·8	52·7	24·0	4, 14th	65·0	21st	·235	80	63	2nd
April	29·810	48·9	48·6	37·9	59·3	27·5	1st	69·2	17th	·313	80	59	13th
May	29·908	59·3	56·2	41·7	70·8	31·0	2nd	81·0	30th	·371	65	41	5th
June	29·967	64·8	61·7	48·5	76·9	34·8	16th	86·0	9th	·448	65	41	24th
July	29·784	65·6	63·1	51·1	75·1	43·0	8th	84·0	4th	·480	71	47	8th
August	29·829	65·5	62·8	51·9	73·8	44·2	25th	80·6	16th	·502	74	53	18, 30
September	30·030	65·6	62·8	48·2	77·5	37·0	22nd	83·0	28th	·497	68	40	29th
October	29·747	48·9	48·8	38·3	59·4	23·0	28th	74·3	7th	·318	77	38	7th
November	29·748	48·8	48·6	40·7	56·5	28·0	18th	68·3	9th	·333	86	64	1st
December	29·717	41·2	41·8	34·9	48·7	24·3	11th	56·5	1st	·250	88	65	7, 13
Year	29·822	51·1	50·2	39·4	61·1	9·0	9th Feby.	86·0	9 June 28th Sept.	·340	75	38	7th Oct.

GIBRALTAR. Lat. 36° 6′ 20″ N.

January	29·934	50·6	53·6	47·5	59·7	38·4	8th	66·6	22nd	·310	75	45	2nd
February	29·896	56·2	58·0	53·4	62·6	42·4	1st	70·0	3rd	·392	82	59	1st
March	29·892	54·7	57·0	51·6	62·4	45·8	6th	74·2	27th	·455	74	47	30th
April	29·501	60·1	61·1	56·3	66·0	49·6	2nd	74·6	26th	·443	74	48	27th
May	29·982	65·9	65·0	59·3	70·7	51·0	15th	82·8	16th	·507	67	47	28th
June	30·010	70·5	69·6	62·8	76·5	59·4	6th	84·6	28th	·554	62	43	25th
July	29·988	74·0	74·7	67·8	81·7	62·2	21st	86·2	31st	·511	63	49	10, 17
August	29·982	74·7	75·8	70·2	81·4	66·0	11th	87·6	12th	·508	69	40	5th
September	29·998	73·2	74·9	70·7	79·2	66·8	30th	87·2	11th	·491	75	51	11th
October	29·935	66·8	69·1	63·4	74·9	56·6	31st	83·6	3rd	·536	75	40	28th
November	30·100	61·3	64·1	58·7	69·5	52·8	5th	75·6	14, 26th	·471	81	61	2, 11
December	30·036	56·5	59·5	54·5	64·5	47·6	20th	76·2	8th	·406	82	60	8th
Year	29·930	63·7	65·2	59·7	70·8	38·4	8th Jan.	87·6	12th Aug.	·465	73	40	5 Aug. 28th Oct.

MALTA. Lat. 35° 53′ 49″ N.

January	29·714	55·7	55·3	51·7	58·9	40·4	30th	67·2	17th	·320	70	44	9th
February	29·707	57·4	56·9	52·7	61·1	36·4	19th	68·6	7th	·340	71	58	7th
March	29·705	58·4	58·1	53·9	62·3	45·8	6th	77·4	30th	·378	74	54	1st
April	29·801	64·1	63·3	59·3	67·4	56·2	2, 23rd	74·8	27th	·406	67	40	14th
May	29·870	67·3	66·2	62·8	69·6	58·2	1st	78·4	25th	·473	70	42	18th
June	29·880	72·4	72·1	68·2	76·1	64·6	1st	82·4	30th	·565	70	54	14th
July	29·849	79·7	80·6	75·5	85·7	70·0	10th	96·0	5th	·703	69	35	5th
August	29·861	79·8	80·0	75·8	84·8	70·8	1st	87·8	2, 4th	·709	69	51	24th
September	29·958	78·6	77·8	73·4	82·2	67·8	16th	87·4	2nd	·658	67	48	28th
October	29·814	74·6	71·3	70·0	78·7	55·0	21st	87·4	27th	·627	72	51	27th
November	29·986	67·5	68·0	64·5	71·6	60·2	22nd	76·2	16th	·514	75	54	11th
December	29·819	60·4	59·5	55·9	63·2	50·4	9, 11, 30	68·4	17, 19th	·364	67	49	28th
Year	29·836	68·0	67·7	63·6	71·8	36·4	19th Feby.	96·0	5th July	·507	70	35	8th July

XIV.

Netley and Stations Abroad in the Year 1895.

ıg. 1° 30′ W. Height of Barometer Cistern above Sea, 47 feet.

Rainfall.			Weather.								Wind.							
			Number of Days of								Number of Observations under each Point per Month.							
Total.	Max.	Day.	Rain.	Snow.	Hail.	Thunder Storm.	Fog.	Clear Sky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
4.44	0·92	12th	13	8	—	—	—	2	13	—	23	8	1	7	5	4	6	6	2
0·60	0·09	24th	1	—	—	—	—	4	8	—	4	23	6	—	—	2	2	2	1
2·41	0·74	26th	15	2	1	—	3	1	9	3	7	17	2	3	5	19	6	11	2
2·92	0·86	24th	12	—	—	—	1	—	13	1	4	10	1	5	2	25	5	4	—
0·45	0·27	30th	4	—	—	1	—	12	4	—	9	13	2	13	7	3	5	8	2
1·86	0·43	28th	9	—	—	—	—	5	7	—	10	11	1	1	3	21	8	4	1
4·20	0·87	27th	14	—	—	—	—	1	6	2	3	4	1	3	4	25	12	10	1
3·17	0·50	6th	16	—	—	4	—	2	9	3	2	1	1	6	4	36	7	2	3
0·24	0·12	10th	5	—	—	1	1	10	2	—	3	17	2	2	4	10	4	4	—
3·88	0·70	8th	15	—	—	—	1	2	9	—	3	12	5	3	1	14	8	13	—
6·15	0·74	15th	23	—	1	1	—	—	14	4	4	8	3	2	7	21	3	—	—
3·02	0·46	12th	18	—	—	—	1	—	19	2	3	13	6	3	2	18	12	5	—
2·47	0·92	12th Jan.	143	10	2	7	7	39	113	15	75	143	43	62	51	197	78	69	12

ıng. 5° 20′ 53″ W. Height of Barometer Cistern above Sea, 52 feet.

9·41	2·33	14th	17	—	1	2	—	7	9	1	—	—	8	—	—	7	38	9	—
4·21	2·54	20th	20	—	1	2	—	1	12	6	—	—	21	—	—	2	28	—	5
8·98	1·81	16th	15	—	1	4	—	6	9	1	—	—	18	4	2	3	29	6	—
4·59	1·98	8th	15	—	—	1	—	3	10	2	—	1	24	—	1	4	26	—	4
2·07	0·69	2nd	7	—	—	2	—	6	6	—	—	1	24	—	—	—	33	—	2
1·75	1·04	8th	4	—	—	—	—	16	1	—	—	—	24	—	—	2	31	—	3
—	—	—	—	—	—	—	—	19	1	—	—	—	22	—	—	—	36	1	3
—	—	—	—	—	—	—	—	11	—	—	—	—	39	—	—	1	17	—	5
2·32	0·98	21st	9	—	1	3	—	4	8	—	—	—	46	—	—	—	8	6	—
7·05	1·82	23rd	11	—	—	—	1	4	9	2	1	—	23	1	—	5	14	5	13
2·09	0·59	24th	8	—	—	—	—	6	7	1	2	2	29	—	1	5	7	12	2
9·21	3·37	1st	13	—	—	—	—	6	8	—	—	2	19	—	—	2	26	13	1
11·63	3·37	1st Dec.	119	—	4	14	1	89	80	13	3	6	297	5	4	31	295	51	38

ıng. 14° 30′ 54″ E. Height of Barometer Cistern above Sea, 112 feet.

1·85	0·46	1st	12	—	6	1	—	—	—	—	2	—	—	—	2	12	3	12	31
1·01	0·42	17th	13	—	1	—	—	—	2	—	—	—	—	—	1	9	4	11	18
0·39	0·07	27th	7	—	—	—	—	—	3	—	2	5	1	2	1	7	5	16	17
0·15	0·13	20th	2	—	—	—	—	2	2	—	—	3	3	9	1	5	1	15	18
0·65	0·31	6th	4	—	—	1	—	2	1	—	1	10	4	10	1	5	2	8	15
—	—	—	—	—	—	—	—	3	—	—	3	9	6	7	1	—	1	20	14
—	—	—	—	—	—	—	—	3	—	—	4	3	—	1	—	—	—	12	41
0·13	0·13	18th	1	—	—	—	—	—	—	—	3	9	1	—	—	1	—	3	39
0·37	0·30	21st	2	—	—	1	—	—	—	—	1	20	2	4	—	3	1	5	19
1·23	0·48	19th	6	—	—	2	—	—	—	—	1	4	4	11	—	4	2	22	13
2·19	0·58	20th	13	—	—	—	—	—	4	—	3	11	2	11	—	5	3	23	—
3·63	1·19	3rd	15	—	—	3	—	—	8	—	3	10	1	5	—	12	6	24	—
11·60	1·19	3rd Dec.	75	—	7	8	—	11	18	—	44	109	31	19	7	63	28	171	225

Appendix

Annual Abstract of Meteorological Observations taken

Scutari Cemetery. Lat. 41° 0′ N.

Month.	Mean Pressure—Corrected and reduced to 32° Fahrenheit.	Air Temperature.								Tension of Vapour.	Relative Humidity.		
		Mean at 9 a.m.	Mean Daily.	Means of		Abs. Min.		Abs. Max.			Per Cent.	Minimum.	
				Min.	Max.	Temp.	Day.	Temp.	Day.		Mean.	Per Cent.	Day.
January	29·800	49·9	50·6	45·3	56·0	36·2	15th	62·6	29th	·288	74	54	29th
February	29·736	43·5	44·7	38·7	50·8	29·4	22nd	63·6	28th	·242	78	55	4th
March	29·773	45·0	46·1	38·8	53·4	30·0	18th	66·8	31st	·248	76	53	20th
April	29·873	54·3	53·8	44·0	63·6	37·0	24th	76·0	1st	·302	66	39	1st
May	29·891	62·1	62·7	52·1	73·3	40·0	5th	89·0	27th	·408	66	42	20th
June	29·876	70·0	69·6	57·7	81·5	45·0	2nd	90·0	12th	·430	59	32	28th
July	29·798	80·0	78·8	66·3	91·4	60·2	1st	102·0	7th	·564	49	27	7th
August	29·813	77·9	76·7	65·4	88·1	57·8	29th	101·2	2nd	·526	51	33	15th
September	29·981	68·5	67·5	57·5	77·5	47·4	23rd	88·8	1st	·447	60	32	9th
October	29·855	63·3	64·0	56·3	72·5	50·8	16th	79·2	21, 29th	·462	72	40	18th
November	30·037	54·9	55·1	49·0	61·2	39·4	24th	70·0	10th	·352	77	56	4th
December	29·857	47·1	47·5	42·7	52·4	30·2	31st	64·0	19th	·261	77	56	11th
Year	29·857	59·7	59·8	51·1	68·5	29·4	22nd Feb.	102·0	7th July	·377	67	27	7th July

Polymedia, Cyprus. Lat. 34° 42½′ 0″ N.

January	29·582	55·9	57·0	44·7	69·3	39·0	18th	76·1	26th	·326	65·5	52·0	12, 23
February	29·419	58·0	57·5	46·4	68·7	39·6	26th	76·9	9th	·358	70·9	49·0	2nd
March	29·365	59·3	56·5	44·6	68·5	36·8	3rd	75·3	5th	·333	62·6	43·0	18th
April	29·379	69·2	65·5	53·2	77·9	48·6	2nd, 5th	87·1	7th	·452	61·4	41·0	19th
*May	29·450	75·5	71·0	58·5	85·5	47·5	4th	99·7	24th	·412	46.2	25·4	8th
June													
July													
August													
September													
October†	29·452	74·6	73·0	60·4	85·6	54·8	17th	92·8	29th	·511	56·5	37·0	19th
November	29·547	66·6	66·7	55·1	78·4	41·4	20th	95·2	1st	·429	60·9	32·0	15th
December	29·479	57·4	59·0	49·6	68·4	41·0	12th	73·1	4th	·367	70·2	49·0	29th

* 24 days only. † 20 days only.

Troodos, Cyprus. Lat. 34° 54′ 0″ N.

January													
February													
March													
April													
May													
June	*24·28	62·1	62·9	51·5	74·4	41·2	1st	86·3	29th	·306	53·9	38·0	5, 13th
July	24·24	71·1	71·1	59·6	82·7	52·0	12th	89·3	9th	·318	40·9	26·8	25th
August	24·21	72·0	72·3	59·9	84·8	51·8	21st	92·6	7th	·335	40·7	25·7	8th
September	24·28	60·6	61·9	51·2	73·7	33·8	25th	85·3	1st	·290	50·9	29·0	2nd
October													
November													
December													

* Aneroid.

IV.—*continued.*

ey and Stations Abroad in the year 1895.

9° 3′ E. Height of Barometer Cistern above Sea, 60 feet.

Rainfall.		Weather.								Wind.								
		Number of Days of								No. of Observations under each Point per Month.								
Max.	Day.	Rain.	Snow.	Hail.	Thunder Storm.	Fog.	Clear Sky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
0·63	6th	16	—	—	—	—	2	14	—	1	1	5	8	24	21	—	1	1
0·50	23rd	17	3	—	1	—	2	16	—	7	10	4	8	9	9	2	4	3
0·70	1,14th	15	1	1	—	—	2	14	—	7	13	3	1	11	21	2	3	1
0·37	15th	5	—	—	1	—	7	7	—	7	33	7	—	7	3	1	1	1
0·46	29th	9	—	—	1	1	4	8	—	7	17	3	1	8	14	3	2	3
0·12	16, 25	2	—	—	2	1	11	1	—	2	34	1	—	14	7	—	—	2
—	—	—	—	—	2	1	18	—	—	3	41	5	—	10	2	—	—	1
0·22	17th	5	—	—	2	—	14	1	—	4	41	5	—	1	8	—	3	—
1·80	21st	9	—	—	6	1	10	4	—	6	37	6	—	1	5	—	—	5
1·08	5th	6	—	—	2	6	6	5	—	4	14	5	4	7	17	1	1	9
1·50	24th	12	—	—	—	2	4	10	—	6	7	18	2	4	15	1	1	6
0·70	8,27th 29th	19	4	1	—	—	—	13	—	7	15	3	10	10	12	—	2	3
1·80	21st Sept	115	8	2	17	12	80	93	—	61	263	65	34	100	138	10	18	35

11° 1′ 0″ E. Height of Barometer Cistern above Sea, 460 feet.

0·35	3rd	7	—	—	—	—	9	—	—	—	1	7	11	20	7	2	7	7
0·60	5th	11	—	1	1	—	3	4	—	5	1	1	—	2	1	14	25	7
0·48	28th	9	—	1	1	—	15	5	—	3	3	1	8	2	3	13	22	7
0·63	11th	7	—	—	1	—	12	1	—	—	—	2	—	8	7	15	—	28
0·10	3rd	3	—	—	—	—	12	1	—	1	—	2	—	6	—	20	1	18
—	—	—	—	—	—	—	9	—	—	6	1	1	1	4	1	9	13	4
1·81	29th	8	—	—	2	—	11	3	—	7	8	8	7	1	3	5	10	11
0·97	9th	9	—	—	—	—	5	6	—	3	1	3	2	1	1	12	16	23

12° 53′ 0″ E. Height of Barometer Cistern above Sea, 5,700 feet.

0·80	7th	4	—	—	1	2	10	2	—	14	—	—	—	4	2	19	—	21
0·20	18th	2	—	—	1	—	18	—	—	4	2	—	1	10	9	18	12	6
0·12	3rd	2	—	—	1	—	20	—	—	5	2	—	—	5	8	4	3	35
0·30	24th	1	—	—	—	—	14	—	—	4	5	—	—	5	8	11	9	18

Appendix

Annual Abstract of Meteorological Observations taken

Fort Napier, Natal. Lat. 29° 3′ S.

Month.	Mean Pressure—Corrected and reduced to 32° Fahrenheit.	Air Temperature.								Tension of Vapour.	Relative Humidity.		
		Mean at 9 a.m.	Mean daily.	Means of		Abs. Min.		Abs. Max.			Per Cent.	Min.	
				Min.	Max.	Temp.	Day.	Temp.	Day.		Mean.	Per Cent.	Day.
January	27·591	73·9	72·6	61·2	84·0	50·0	24th	102·4	27th	·615	69	35	27th
February	27·584	72·4	71·4	60·7	82·1	52·5	5th	93·8	19th	·581	69	40	16, 18
March	27·652	72·7	72·3	62·1	82·5	52·9	12, 25th	99·8	8th	·632	71	35	14th
April	27·652	68·1	67·5	55·5	79·6	46·0	24th	90·5	13th	·536	69	34	7th
May	27·750	64·2	63·1	50·3	75·9	36·0	29th	90·2	17th	·412	61	31	30th
June	27·772	57·1	57·4	42·0	72·8	33·8	15th	84·0	4th	·334	58	34	4th
July	27·765	58·9	60·9	46·5	75·4	37·0	1st	94·2	29th	·342	56	35	27th
August	27·735	65·4	64·1	48·8	79·5	40·6	31st	92·0	10th	·417	56	35	5th
September	27·715	66·7	65·2	49·6	80·9	36·5	3rd	99·0	29th	·396	52	33	4th
October	27·667	70·3	69·5	55·3	83·8	37·4	6th	101·2	21st	·455	58	37	14, 28
November	27·617	73·3	71·7	60·4	83·0	52·3	25th	105·6	21st	·543	65	35	9th
December	27·582	75·3	73·2	61·6	84·9	53·4	11th	101·0	5th	·562	64	37	7th
Year	27·673	68·2	67·4	54·5	80·4	33·8	15th June.	105·6	21st Nov.	·485	62	31	30th May

Sierra Leone. Lat. 8° 29′ 30″ N.

January	29·731	76·9	81·8	74·5	89·1	70·0	2nd	94·8	12th	·790	68	49	18th
February	29·746	81·6	81·5	74·5	88·5	68·7	13th	92·0	10th	·770	69	57	25th
March	29·714	82·2	82·0	74·6	89·2	70·0	12th	93·4	22nd	·759	66	42	5th
April	29·738	83·0	82·4	75·6	89·2	70·8	22nd	93·5	9th	·802	68	39	14th
May	29·748	83·2	82·1	75·3	89·0	69·2	25th	93·0	5th	·838	71	57	12, 13
June	29·784	80·9	80·0	73·5	86·5	67·9	8th	91·0	14th	·840	77	59	14th
July	29·798	79·1	78·4	72·2	84·7	69·0	3, 17th	88·4	17th	·814	79	60	14th
August	29·769	77·7	78·4	72·6	84·3	70·0	3, 7, 22	88·0	30th	·792	80	63	7th
September	29·771	79·5	79·7	73·2	86·3	69·0	13th	90·0	23rd	·841	80	62	10th
October	29·751	81·1	80·7	73·4	88·1	68·9	8th	91·2	1st	·839	74	62	1st
November	29·717	81·5	80·9	73·6	88·2	69·0	20th	92·0	3rd	·829	72	53	13th
December	29·722	82·3	81·9	75·1	88·7	70·0	9th	90·8	7, 16th	·825	70	52	9th
Year	29·749	80·7	80·8	74·0	87·6	67·9	8th June.	94·8	12th Jan.	·812	73	39	14th April

Barbados. Lat. 13° 7′ 39″ N.

January	30·040	80·2	73·7	62·7	84·7	59·0	20, 21st	87·0	25th	·779	74	45	31st
February	30·063	80·0	73·9	61·9	85·9	60·0	12th	87·6	23rd	·663	66	49	17th
March	30·063	80·5	74·7	63·0	86·4	60·2	1st	88·4	24th	·830	76	55	8th
April	30·072	82·5	75·9	64·2	87·6	61·2	3rd	89·6	24th	·945	82	67	8th
May	30·076	82·0	76·0	65·3	86·8	63·4	20th	88·8	23rd	·824	73	53	18th
June	30·106	83·3	76·9	66·4	87·4	64·2	17th	89·6	13th	·765	66	53	22nd
July	30·091	83·9	77·3	65·9	88·7	61·4	30th	91·2	26th	·752	63	50	17th
August	29·982	83·8	77·4	65·7	89·2	63·0	31st	92·0	20th	·799	67	51	28th
September	30·004	83·6	76·4	65·1	87·8	61·8	17th	90·0	15th	·867	74	60	4, 9th
October	29·979	83·4	76·3	64·9	87·8	62·2	29th	90·2	23rd	·847	73	61	31st
November	29·991	81·6	74·1	62·3	85·9	60·0	23rd	89·0	5th	·806	74	57	23rd
December	29·830	80·6	74·1	63·1	85·2	59·0	18th	87·0	19th	·776	73	54	9th
Year	30·025	82·1	75·6	64·2	86·9	59·0	20, 21st Jan. 18 Dec.	92·0	20 Aug.	·804	72	45	31st Jan.

No. XIV.—*continued.*

at Netley and Abroad Stations in the Year 1895.

Long. 30° 2′ E. Height of Barometer Cistern above Sea, 2,220 feet.

Mean Amount of Cloudiness.	Rainfall.			Weather.								Wind.								
				Number of Days of								Number of Observations under each Point per Month.								
	Total.	Max.	Day.	Rain.	Snow.	Hail.	Thunder Storm.	Fog.	Clear Sky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
4·7	12·97	3·00	23rd	17	—	—	12	—	4	2	—	—	2	6	2	3	1	1	—	47
4·5	6·07	1·15	6th	16	—	—	4	—	6	4	—	—	—	2	2	1	1	3	—	47
5·0	9·47	2·10	12th	21	—	1	4	—	9	3	—	—	—	3	4	3	2	3	1	44
3·0	1·90	0·90	6th	11	—	—	2	—	11	—	—	—	5	4	1	3	3	3	2	39
3·0	0·53	0·20	19th	4	—	—	—	—	18	2	—	—	3	4	5	—	6	2	2	40
1·0	—	—	—	—	—	—	—	—	22	—	—	1	9	3	1	—	2	—	3	41
4·3	0·08	0·07	11th	2	—	—	—	—	11	6	—	2	—	—	—	—	—	—	—	60
2·0	0·40	0·33	20th	3	—	—	—	—	23	4	1	—	2	1	—	—	—	—	2	57
3·5	0·88	0·61	16th	4	—	—	1	—	12	3	—	2	1	—	2	—	—	1	1	53
4·5	1·25	0·39	19th	10	—	—	4	—	11	8	5	1	1	2	—	5	—	—	—	58
6·0	2·94	0·82	21st	16	—	1	5	1	6	12	1	—	—	—	—	—	—	—	2	58
5·5	11·75	2·54	12th	19	—	1	4	1	5	8	1	—	2	—	1	—	—	—	1	58
4·0	48·24	3·00	23rd Jan.	123	—	3	36	2	138	52	8	6	30	26	17	14	16	10	14	597

Long. 13° 9′ 17″ W. Height of Barometer Cistern above Sea, 224 feet.

3·3	1·94	1·94	14th	1	—	—	1	—	8	—	—	3	1	5	3	11	11	20	—	8
3·8	0·26	0·26	12th	1	—	—	2	—	—	—	—	5	—	4	2	11	8	15	1	10
3·7	1·61	1·24	11th	3	—	—	—	—	—	—	—	5	—	6	2	12	7	24	1	5
3·8	2·78	0·99	16th	6	—	—	2	—	1	—	—	—	—	6	2	10	11	21	2	8
4·0	5·29	0·73	15th	18	—	—	14	—	—	—	—	2	—	11	—	14	7	19	—	9
3·7	17·57	3·65	12th	26	—	—	19	—	—	—	—	5	1	11	2	5	1	21	4	10
3·7	34·76	5·62	27th	23	—	—	6	—	2	—	—	7	—	7	2	7	6	22	2	9
3·5	26·76	2·68	6th	22	—	—	1	—	—	—	—	7	—	4	1	6	8	18	7	11
3·8	24·64	7·16	1st	20	—	—	10	—	—	—	—	6	—	10	1	7	4	15	6	11
4·0	5·40	1·21	23rd	19	—	—	9	—	—	—	—	3	2	13	3	5	2	16	2	16
3·6	3·78	1·14	13th	9	—	—	5	—	—	—	—	6	3	13	2	11	1	11	2	11
2·7	—	—	—	—	—	—	—	—	4	—	—	3	1	13	1	7	2	14	—	21
3·6	124·79	7·16	1st Sept.	148	—	—	69	—	15	—	—	52	8	103	21	105	68	216	27	129

Long. 59° 40′ 8″ W. Height of Barometer Cistern above Sea, 30⅔ feet.

3·7	3·45	0·76	12th	16	—	—	—	—	—	—	—	—	52	2	7	1	—	—	—	—
4·4	1·48	0·52	12th	11	—	—	—	—	—	—	—	1	42	2	8	1	—	—	1	1
4·7	1·72	0·29	30th	18	—	—	—	—	—	—	—	—	40	14	8	—	—	—	—	—
4·2	1·81	0·71	29th	13	—	—	—	—	—	1	—	—	23	14	21	2	—	—	—	—
5·4	4·92	0·85	9th	19	—	—	—	—	—	3	—	—	30	15	26	1	—	—	—	—
5·9	2·94	1·00	16th	19	—	—	—	—	—	1	—	—	11	16	33	—	—	—	—	—
5·1	2·76	1·31	29th	23	—	—	—	—	—	1	—	—	31	15	14	2	—	—	—	—
5·5	10·93	2·83	30th	26	—	—	3	—	—	2	—	—	38	5	15	3	—	—	1	—
6·0	11·76	2·15	17th	27	—	—	3	—	—	1	—	2	25	9	17	3	—	—	2	2
4·6	4·53	1·34	1st	25	—	—	1	—	—	1	—	—	39	7	14	2	—	—	—	—
5·4	12·04	1·78	8th	25	—	—	—	—	—	4	—	—	46	5	7	2	—	—	—	—
4·4	4·04	0·79	20th	16	—	—	—	—	—	1	—	—	39	8	7	2	—	—	1	5
4·9	62·38	2·83	30th Aug.	238	—	—	7	—	—	15	—	3	416	112	167	19	—	—	5	8

Appendix

Annual Abstract of Meteorological Observations taken

Up Park Camp, Jamaica. Lat. 17° 59′ N.

Month.	Mean Pressure—Corrected and reduced to 32° Fahrenheit.	Air Temperature								Tension of Vapour.	Relative Humidity.		
		Mean at 9 a.m.	Mean daily.	Means of		Abs. Min.		Abs. Max.			Per Cent.	Min.	
				Min.	Max.	Temp.	Day.	Temp.	Day.		Mean.	Per Cent.	Day.
January	29·816	81·4	78·3	65·3	91·4	61·0	4th	95·0	18, 19	·618	54	42	28
February	29·819	81·8	77·3	65·1	89·6	62·0	14, 24, 27	93·0	3rd	·644	58	45	4, 1 11
March	29·833	84·1	78·1	66·4	89·8	64·0	3, 5, 15, 16	94·0	18th	·665	58	45	18
April	29·795	84·6	79·0	68·0	90·1	64·0	2nd	93·5	20th	·732	61	48	8
May	29·790	86·7	79·6	67·8	91·4	66·0	29, 30, 31	94·5	20th	·780	62	51	1, 2
June	29·797	84·4	80·6	68·2	93·1	63·0	1st	96·0	16, 17, 18	·734	55	39	17, 23, 30
July	29·845	88·5	81·1	67·5	94·8	63·0	15th	98·0	25, 26	·724	53	35	7, 9
August	29·778	87·4	81·2	67·4	95·1	65·0	15, 23	100·0	17, 23	·769	57	40	17
September	29·745	87·1	79·8	65·4	94·2	60·1	29th	98·3	19th	·781	59	45	28
October	29·711	85·0	81·5	69·9	93·1	68·0	23rd	98·1	28th	·810	68	50	29
November	29·755	84·5	81·3	70·1	92·5	68·1	1st	96·8	17th	·783	65	52	3,
December	29·795	84·9	79·5	67·7	91·4	62·4	21st	95·1	28th	·717	62	37	18
Year	29·790	85·0	79·8	67·4	92·2	60·1	29th Sept.	100·0	17, 23 Aug.	·730	59	35	7, 8 Jul

Newcastle, Jamaica. Lat. 18° 0′ 6″ N.

January	26·341	*	63·5	49·6	77·5	46·8	9th	83·0	29th	*	*	*	
February	26·349	66·5	62·9	49·4	76·5	47·0	27th	83·8	3rd	·508	73	49	3r
March	26·342	69·1	63·9	50·9	76·9	48·6	26th	83·5	16th	·570	78	51	21
April	26·338	70·7	64·4	52·6	76·3	50·6	2nd	83·0	30th	·550	74	56	26
May	26·331	73·8	66·0	54·5	77·6	52·6	3rd	83·0	18th	·595	75	53	1
June	26·324	74·9	68·3	55·8	80·8	54·2	2, 11th	84·4	26th	·588	69	47	28
July	26·329	75·3	68·3	55·6	81·1	54·2	2nd	84·6	7th	·570	66	43	7
August	26·326	75·1	68·2	55·9	80·5	52·6	22nd	84·0	22nd	·587	68	50	17
September	26·322	75·5	68·7	56·6	80·9	53·4	23rd	85·4	15th	·615	72	54	26
October	26·320	73·6	67·2	55·9	78·6	54·0	29th	84·0	28th	·631	79	63	1
November	26·325	72·7	66·2	54·1	78·4	52·0	15th	82·2	14th	·569	75	50	14
December	26·313	67·2	62·4	51·1	73·7	44·5	13th	82·0	27th	·510	75	51	22
Year	26·329	*	65·8	53·5	78·2	44·5	13th Dec.	85·4	15th Sept.	*	*	*	

* No instrument.

St. Lucia. Lat. 14° 0′ 13″ N.

January	29·202	74·5	74·9	68·8	81·0	65·2	15th	86·4	18th	·666	73	52	31
February	29·219	74·8	75·0	67·9	82·1	63·4	24th	84·2	22nd	·679	75	50	6
March	29·206	75·6	76·3	70·6	82·1	67·4	21st	83·8	27th	·731	80	55	3
April	29·213	76·5	76·4	70·2	82·6	65·8	9th	84·4	25th	·768	79	67	9
May	29·221	77·3	76·7	70·5	82·9	65·2	30th	85·2	18th	·804	83	68	2
June	29·229	78·2	77·8	72·5	83·1	70·2	4, 13th	85·4	25th	·804	80	68	12
July	29·219	79·1	78·1	72·1	84·1	66·2	30th	85·8	27th	·808	78	63	18
August*	29·163	79·8	78·9	72·6	85·2	69·0	16th	87·4	30th	·792	75	60	29
September	29·191	79·2	77·7	71·4	84·0	68·2	29th	87·0	8th	·785	77	58	5
October	29·135	80·3	79·0	72·8	85·2	60·2	27th	87·6	9, 11th	·762	74	52	18
November	29·150	78·3	77·4	72·1	82·8	68·0	28th	86·2	5th	·755	78	60	1
December	29·154	77·2	77·3	71·3	83·3	68·0	1, 2nd	86·6	13, 14, 31	·750	79	65	22
Year	29·192	77·6	77·1	71·1	83·2	60·2	27th Oct.	87·6	9, 11th Oct.	·750	78	50	6 F

* 27 days only.

No. XIV.—*continued.*

at Netley and Stations Abroad in the Year 1895.

Long. 76° 56′ W. Height of Barometer Cistern above Sea, 245 feet.

Mean Amount of Cloudiness.	Rainfall.			Weather.								Wind.								
				Number of Days of								Number of Observations under each Point per Month.								
	Total.	Max.	Day.	Rain.	Snow.	Hail.	Thunder Storm.	Fog.	Clear Sky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
2·5	0·09	0·08	8th	2	—	—	—	—	8	—	—	1	4	—	23	4	1	1	—	28
2·9	2·02	1·60	24th	4	—	—	—	—	12	1	—	7	—	1	6	17	1	1	—	23
3·1	0·96	0·32	22nd	6	—	—	—	—	4	—	—	—	—	1	23	6	3	1	—	28
4·2	2·03	0·88	13th	8	—	—	—	—	1	1	—	1	—	1	27	8	1	1	—	21
4·7	2·92	0·90	21st	9	—	—	1	—	—	1	—	1	—	1	30	3	1	—	—	26
4·3	0·75	0·30	9th	5	—	—	1	—	—	2	—	—	1	2	38	1	1	1	—	16
3·9	1·24	0·47	12th	7	—	—	—	—	—	5	—	1	3	—	29	5	1	3	—	20
4·4	2·80	1·60	24th	12	—	—	2	—	—	1	—	1	—	—	29	1	1	1	—	29
4·9	2·81	0·85	23rd	10	—	—	—	—	—	—	—	—	5	2	21	1	2	2	—	27
5·5	8·36	2·34	19th	15	—	—	—	—	—	11	—	1	6	1	27	3	4	2	3	15
5·0	3·48	0·63	22nd	14	—	—	—	—	4	9	—	3	9	—	28	2	5	1	1	11
4·1	0·82	0·49	10th	5	—	—	—	—	3	3	—	4	11	—	24	4	8	—	7	4
4·1	28·28	2·34	19th Oct.	97	—	—	10	—	32	34	—	20	39	9	305	55	29	14	11	248

Long. 76° 0′ 42″ W. Height of Barometer Cistern above Sea, 3,800 feet.

4·4	1·02	0·40	9th	8	—	—	—	—	1	—	—	8	6	12	9	—	—	—	2	25
5·7	6·42	2·30	26th	12	—	—	—	—	—	6	—	8	5	13	9	—	—	—	—	21
5·0	3·07	1·88	30th	12	—	—	—	—	—	1	—	13	8	9	4	—	—	—	4	24
5·7	9·24	2·15	13th	16	—	—	—	—	—	4	—	6	4	13	4	—	—	—	—	33
5·9	13·95	3·18	24th	19	—	—	1	—	—	3	—	3	8	8	2	—	—	—	—	14
5·2	2·22	0·60	8th	10	—	—	3	—	—	2	—	4	1	14	8	—	—	—	2	31
5·2	1·25	0·30	3rd	12	—	—	1	—	—	1	—	7	6	8	5	—	—	—	3	33
5·5	12·70	4·50	22nd	10	—	—	3	—	—	1	—	8	6	9	3	—	—	—	1	35
5·8	5·42	1·67	23rd	16	—	—	5	—	—	3	—	7	3	6	—	—	—	—	1	43
7·2	17·42	4·17	19th	24	—	—	1	—	—	8	—	3	1	8	4	—	—	—	1	45
6·4	11·11	2·06	22nd	26	—	—	1	—	—	5	—	10	5	8	—	—	—	—	—	37
6·0	4·92	1·12	10th	20	—	—	—	—	—	4	—	27	8	4	—	—	—	—	2	21
5·7	88·74	4·50	22nd Aug.	185	—	—	15	—	1	38	—	104	61	112	48	—	—	—	16	389

Long. 61° 0′ 25″ W. Height of Barometer Cistern above Sea, 744 feet.

6·3	11·16	2·03	3rd	23	—	—	—	—	—	9	—	4	30	16	12	—	—	—	—	—
5·9	2·00	0·64	1st	11	—	—	—	—	—	5	—	5	23	18	10	—	—	—	—	—
6·2	6·43	1·18	16th	18	—	—	—	—	—	6	—	5	32	10	15	—	—	—	—	—
5·7	4·31	0·68	29th	17	—	—	—	—	—	4	—	1	36	9	14	—	—	—	—	—
5·8	14·57	3·45	28th	20	—	—	2	—	—	12	—	1	44	6	11	—	—	—	—	—
6·3	4·68	0·56	14th	18	—	—	—	—	—	8	—	7	38	0	9	—	—	—	—	—
6·3	7·72	1·51	29th	24	—	—	—	—	—	3	—	2	48	5	7	—	—	—	—	—
6·0	10·44	2·02	5th	24	—	—	1	—	—	5	—	—	45	8	1	—	—	—	—	—
7·4	17·23	1·06	28th	27	—	—	4	—	—	14	—	—	31	9	19	—	1	—	—	—
5·8	13·25	2·15	1st	20	—	—	—	1	—	6	—	13	17	13	13	6	—	—	—	—
5·8	17·31	1·80	28th	25	—	—	—	—	—	7	1	10	20	14	12	4	—	—	—	—
5·5	12·19	2·90	2nd	23	—	—	—	—	—	9	—	2	34	12	12	—	2	—	—	—
6·1	21·29	3·45	28th May	250	—	—	7	1	—	88	1	50	398	126	135	10	3	—	—	—

Appe

Annual Abstract of Meteorological Observations ta

Bermuda. Lat. 32° 17′ 40′

Month.	Mean Pressure corrected and reduced to 32° Fahrenheit.	Air Temperature.							Tension of Vapour.	Relativ Humidi	
		Mean at 9 a.m.	Mean Daily.	Means of		Abs. Min.		Abs. Max.			
				Min.	Max.	Temp.	Day.	Temp.	Day.	Per Cent. Mean.	Mi Per Cent.
January -	29·980	64·1	63·4	58·9	67·9	52·0	20th	74·0	30th	·485	75	59
February	29·823	60·8	60·1	55·2	65·0	49·0	27th	74·6	3rd	·443	80	68
March -	29·953	63·2	62·3	57·5	67·1	49·0	23rd	73·7	8th	·479	78	56
April -	29·935	66·1	64·2	59·4	69·0	50·8	1st	76·0	30th	·534	81	62
May -	30·030	73·3	71·9	66·6	77·3	62·2	17th	80·6	27th	·712	83	65
June -	29·967	77·1	75·7	70·5	81·0	66·6	3rd	85·4	27th	·828	85	74
July -	30·017	81·1	78·6	73·2	84·0	70·0	5, 16th	86·0	12, 28th	·901	83	69
August -	29·966	82·4	79·9	74·3	85·5	70·5	2nd	89·0	30, 31st	·851	74	60
September	29·918	80·5	78·4	72·4	84·5	64·0	17th	89·1	1st	·766	72	55
October -	29·843	76·4	74·5	69·9	79·0	60·2	25, 26th	85·1	1st	·714	76	57
November	30·023	73·8	72·9	69·1	76·7	63·5	23rd	80·0	16th	·709	84	62
December	29·898	66·3	65·7	62·0	69·4	56·8	15th	74·8	3rd	·540	81	57
Year -	29·946	72·1	70·6	65·7	75·5	49·0	27 Feb. 23 Mar.	89·1	1st Sept.	·663	79	55

Fort Canning, Singapore. Lat. 1° 16′

January -	29·747	80·2	78·8	71·8	85·9	69·1	26th	89·4	7th	·729	75	60
February	29·756	82·3	80·6	71·6	89·5	69·1	13th	92·4	3rd	·773	66	58
March -	29·721	83·1	81·1	73·1	89·1	69·6	18th	94·1	15th	·796	68	56
April -	29·716	81·1	81·9	74·1	89·7	70·4	11th	93·0	28th	·847	73	58
May -	29·712	84·6	82·5	75·1	90·0	71·4	7th	93·5	11th	·860	69	56
June -	29·693	84·2	83·6	76·5	90·7	72·0	14th	94·8	27th	·874	71	57
July -	29·704	82·5	81·0	73·7	88·4	70·0	27, 29th	94·0	11th	·829	73	55
August -	29·699	81·6	80·7	73·5	88·0	69·3	17th	91·0	1st, 6th	·826	74	57
September	29·731	84·2	82·4	74·8	90·0	71·3	6th	94·2	14th	·844	72	46
October -	29·709	83·0	80·6	73·5	87·8	70·0	28th	93·0	2nd	·797	70	51
November	29·756	80·9	79·6	73·3	85·9	71·0	27th	91·3	4th	·776	71	49
December	29·720	80·2	79·1	72·5	91·2	70·0	3, 19, 29, 31st	91·2	8th	·789	74	53
Year -	29·722	82·3	81·0	73·6	88·8	69·1	26 Jan. 13 Feb.	94·8	27th June	·817	71	46

IV.—*continued.*

log and Stations Abroad in the Year 1885.

54° 47′ W. Height of Barometer Cistern above Sea, 15 feet.

Rainfall.			Weather.								Wind.								
			Number of Days on which								Mean Observations under-mentioned Hours per Month.								
Mean for 26 Years.	Date.	Days.	Snow fell.	Hail fell.	Thunder and Storms.	Fog.	Rain fell 0·01 to 0·09 inch.	Rain fell 0·10 inch and upwards.	Dew only.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
1·38	22nd	11	—	—	1	—	2	4	1	1	2	1	4	10	1	3	4	18
1·38	20th	25	—	—	—	—	—	14	—	—	1	—	2	1	2	4	18	7
1·60	11th	11	—	—	1	—	—	9	—	6	1	1	1	1	1	4	7	15
3·20	13th	17	—	—	3	—	2	10	—	6	1	2	10	10	3	3	4	9
0·60	2nd	12	—	—	—	—	—	12	—	4	1	4	7	17	9	1		16
1·38	16th	17	—	—	3	—	—	8	—	—	—	1	5	29	21	3	1	11
1·26	13th	18	—	—	2	—	—	9	—	7	—	—	—	25	21	2	2	4
0·80	16th	15	—	—	1	—	2	4	—	—	1		7	15	18	7	4	9
2·00	14th	15	—	—	1	—	1	7	—	6	7	6	3	9	6		8	16
1·62	22nd	16	—	—	—	—	1	11	1	6	4	7	6	15	9	2	7	10
0·62	4th	21	—	—	—	—	—	7	—	1	6	12	13	21	4	3	—	1
1·38	4th	17	—	—	—	—	1	9	—	14	9	1	5	9	6	4	8	7
3·28	13th April	201	—	—	16	—	10	108	1	57	45	42	80	166	125	38	51	115

103° 58′ E. Height of Barometer Cistern above Sea, 116 feet.

2·00	12th	8	—	—	5	—	—	14	—	20	36	—	—	—	—	1	3	—
2·00	26th	5	—	—	2	—	—	7	—	8	36	—	5	—	1	—	2	11
2·00	20th	7	—	—	7	—	—	12	—	5	51	—	13	—	—	1	15	—
1·70	18th	17	—	—	7	—	—	20	—	6	3	—	11	—	6	—	2	30
1·50	27th	9	—	—	9	—	—	8	—	—	—	—	—	—	—	2	28	30
1·90	30th	9	—	—	7	—	—	10	—	—	—	—	—	—	24	—	20	30
1·00	9th	15	—	—	8	—	—	12	—	—	—	—	—	—	9	2	20	30
2·00	3rd	14	—	—	5	—	—	7	—	—	—	—	—	—	24	—	6	30
1·20	6th	10	—	—	7	—	—	2	—	—	—	—	1	1	21	3	4	30
2·10	19th	14	—	—	5	—	—	11	—	1	—	—	1	2	8	4	9	30
1·85	21st	19	—	—	5	—	—	17	—	6	13	—	—	—	—	3	8	30
6·00	30th	14	—	—	2		—	14	—	—	13	—			—	—	17	30
6·00	30th Dec.	157	—	—	67	—	—	134	—	39	136	—	31	3	93	18	115	360

Appe

Annual Abstract of Meteorological Observations t

Hong Kong. Lat. 22° 16′ 20

Month.	Mean Pressure — Corrected and reduced to 32° Fahrenheit.	Air Temperature.								Tension of Vapour.	Relati Humid	
		Mean at 9 a.m.	Mean daily.	Means of		Abs. Min.		Abs. Max.			Per Cent.	Mi
				Min.	Max.	Temp.	Day.	Temp.	Day.		Mean.	Per Cent.
January -	30·142	58·8	58·8	53·8	63·7	45·0	19th	74·5	8th	·419	79	59
February -	30·079	62·2	62·9	57·6	68·1	51·5	6th	78·5	28th	·487	81	53
March -	30·051	65·5	66·1	61·3	70·9	48·0	18th	79·0	25, 27th	·551	80	58
April -	29·935	75·3	75·4	70·6	80·2	64·5	1st	86·0	17th	·871	83	54
May -	29·815	80·2	80·0	74·8	85·2	69·0	4th, 6th	90·5	17th	·883	83	64
June -	29·746	84·5	83·7	78·7	88·7	73·0	8th	96·0	25th	·990	81	66
July -	29·702	85·2	85·1	80·3	89·9	75·0	4th	93·5	23, 24th	1·014	81	71
August -	29·706	84·6	84·0	78·4	89·6	73·0	10th	93·5	25th	·980	78	68
September	29·784	83·4	81·1	77·6	84·6	67·5	30th	94·5	4th	·919	74	55
October -	29·948	77·0	77·1	72·3	81·8	65·0	24th	87·0	18, 19th	·760	79	64
November	30·036	68·0	70·0	63·8	76·2	53·0	6th	84·0	9th	·579	75	59
December	30·148	64·9	65·7	59·6	71·8	49·0	10th	82·5	3rd	·501	73	53
Year -	29·924	74·1	74·2	69·1	79·2	45·0	19th Jan.	96·0	25 June	·747	79	59

Sanitarium, Hong Kong. Lat. 22° 16′ 20

January -	No instruments.								No instruments.
February -									
March -									
April -									
May -									
*June -		78·8	72·7	85·0	63·0	8th	90·5	24th	
July -		79·2	72·6	85·8	69·0	4, 29th	90·0	26, 27th	
August -		70·4	71·8	87·1	69·5	14th	90·0	8th	
September		77·0	69·7	84·3	59·0	30th	93·0	4th	
†October -		71·8	65·5	78·1	60·0	1st	82·0	7, 9, 11	
November									
December -									

* 25 days. Opened 6th June. † 18 days. Closed 18th October

No. XIV.—*continued.*

at Netley and Stations Abroad in the Year 1895.

Long. 114° 8′ 16″ E. Height of Barometer Cistern above Sea, 18 feet.

Mean Amount of Cloudiness.	Rainfall.			Weather.								Wind.							
				Number of Days of								Number of Observations under each Point per Month.							
	Total.	Max.	Day.	Rain.	Snow.	Hail.	Thunder Storm.	Fog.	Clear Sky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	NW.	Calm.
5·6	0·48	0·18	19th	8	—	—	—	—	10	14	—	5	29	13	4	—	—	1	2	8
7·6	0·84	0·42	9th	5	—	—	—	1	2	19	—	—	18	15	9	—	—	—	1	13
7·6	1·53	0·76	27th	7	—	—	—	—	4	22	—	3	22	13	4	—	—	2	13	5
8·5	3·04	2·15	24th	6	—	—	—	—	—	21	—	—	16	15	12	—	1	—	2	14
4·9	5·01	1·47	28th	18	—	—	2	—	4	15	—	—	13	10	5	—	3	5	6	20
5·6	5·62	2·42	2nd	18	—	—	—	—	3	8	—	—	14	13	8	3	15	1	—	6
6·1	21·89	5·17	28th	19	—	—	—	—	1	13	—	1	5	3	11	8	19	8	2	5
4·6	8·24	2·37	11th	18	—	—	—	—	6	6	—	1	7	4	4	3	18	6	5	14
4·1	7·27	2·09	28th	11	—	—	—	—	9	6	—	—	29	7	1	—	—	5	7	11
5·5	0·49	0·19	22nd	8	—	—	—	—	8	10	—	1	26	17	8	—	4	1	2	3
4·1	0·45	0·32	1st	2	—	—	—	—	13	9	—	2	25	18	—	—	—	—	3	12
4·7	0·27	0·20	9th	3	—	—	—	—	12	10	—	2	14	20	5	—	—	—	4	17
5·7	55·13	7·17	28th July	123	—	—	2	1	72	153	—	15	218	148	71	14	60	29	47	128

Long. 114° 9′ 16″ E. Height of Barometer Cistern above Sea, 911 feet.

5·2	1·37	0·14	12th	12	—	—	—	—	—	2	—	1	14	3	13	16	3	—	—	—
6·2	19·06	5·40	28th	15	—	—	—	—	—	9	—	1	4	—	29	28	—	—	—	—
5·5	8·85	3·10	11th	13	—	—	—	—	4	6	—	—	9	—	34	30	—	—	—	—
4·5	7·97	2·10	28th	9	—	—	—	—	7	4	—	1	57	2	—	—	—	—	—	—
4·3	—	—	—	—	—	—	—	—	1	1	—	—	26	10	—	—	—	—	—	—

Summary of Results of Meteorological Obs

Stations.	Altitude, above Sea level.	Latitude.	Longitude.	Mean Daily Air Temp.	Air Pressure—corrected and reduced to 32° F.	Air Temperature.							Tension of Vapour.	Relativ
						Mean, 9 a.m.	Means of		Abs. Min.		Abs. Max.			Per Cent.
							Min.	Max.	Temp.	Date.	Temp.	Date.		Mean.
Mediterranean:	ft.	° ′ ″	° ′ ″											
Gibraltar -	52	36 6 20 N.	5 20 53 W.	65·2	29·930	63·7	59·7	70·8	38·4	8 Jan.	87·6	12 Aug.	·465	73
Malta -	112	35 53 49 N.	14 30 54 E.	67·7	29·836	68·0	63·6	71·8	36·4	19 Feb.	96·0	5 July	·507	70
Scutari -	60	41 0 0 N.	29 3 0 E.	59·8	29·857	59·7	51·1	68·5	29·4	22 Feb.	102·0	7 July	·377	67
Cyprus: Polymedia	460	34 42½ 0 N.	31 1 0 E.											
Mt. Troodos -	5,700	34 54 0 N.	32 53 0 E.											
Natal, Fort Napier.	2,220	29 3 0 S.	30 2 0 E.	67·4	27·673	68·2	54·5	80·4	33·8	15 June	105·6	21 Nov.	·485	62
Sierra Leone -	224	8 29 30 N.	13 9 17 W.	80·8	29·749	80·7	74·0	87·6	67·9	8 June	94·8	12 Jan.	·812	73
West Indies: Barbados -	30½	13 7 39 N.	59 40 8 W.	75·6	30·025	82·1	64·2	86·9	59·0	20 Jan. 21 Jan. 18 Dec.	92·0	20 Aug.	·804	72
Jamaica: Up Park Camp.	245	17 59 0 N.	76 56 0 W.	79·8	29·790	85·0	67·4	92·2	60·1	29 Sept.	100·0	17 Aug. 23 Aug.	·730	59
Newcastle -	3,800	18 0 6 N.	76 0 42 W.	65·8	26·329		53·5	78·2	44·5	13 Dec.	85·4	15 Sept.	*	*
St. Lucia -	744	14 0 13 N.	61 0 25 W.	77·1	29·192	77·6	71·1	83·2	60·2	27 Oct.	87·6	9 Oct. 11 Oct.	·759	78
Bermuda -	151	32 17 40 N.	64 47 0 W.	70·6	29·946	72·1	65·7	75·5	49·0	27 Feb. 23 Mar.	89·1	1 Sept.	·663	79
Singapore: Port Canning	110	1 16 0 N.	103 53 0 E.	81·0	29·722	82·3	73·6	88·8	69·1	26 Jan. 13 Feb.	94·8	27 June	·817	71
Hong Kong -	18	22 16 20 N.	114 8 16 E.	74·2	29·924	74·1	69·1	79·2	45·0	19 Jan.	96·0	25 June	·747	79
„ Sanitarium -	911	22 16 20 N.	114 9 16 E.											

* No instruments.

XIV.—*continued.*

at Stations Abroad in the Year 1895.

Rainfall.			Weather.								Wind.									
			Number of Days of								Number of Observations under each Point per Month.									No. of Month in which Observations were taken.
Total.	Max.	Date.	Rain.	Snow.	Hail.	Thunder Storms.	Fog.	Clear Sky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	NW.	Calm.	
1·63	3·37	1 Dec.	119	—	4	14	1	89	80	13	3	6	297	5	4	31	295	51	38	12 months
1·60	1·10	3 Dec.	75	—	7	8	—	14	18	—	34	102	31	69	7	63	28	171	225	12 ,,
3·60	1·80	21 Sept.	115	8	2	17	12	80	93	—	61	263	65	34	106	138	10	18	35	12 ,,
																				8 ,,
																				4 ,,
8·24	3·00	23 Jan.	123	—	3	36	2	138	52	8	6	30	26	17	14	16	10	14	597	12 ,,
1·79	7·16	1 Sept.	148	—	—	69	—	15	—	—	52	8	103	21	106	68	216	27	129	12 ,,
2·38	2·83	30 Aug.	238	—	—	7	—	—	15	—	3	416	112	167	19	—	—	5	8	12 ,,
8·28	2·34	19 Oct.	97	—	—	10	—	32	34	—	20	39	9	305	55	29	14	11	248	12 ,,
8·74	4·50	22 Aug.	185	—	—	15	—	1	38	—	104	61	112	48	—	—	—	16	389	12 ,,
1·29	3·45	28 May	250	—	—	7	1	—	88	1	59	398	126	135	10	3	—	—	—	12 ,,
3·00	3·24	13 April	200	—	—	18	—	10	104	2	57	48	42	64	164	153	38	51	113	12 ,,
9·83	6·00	30 Dec.	137	—	—	67	—	—	134	—	39	136	—	31	3	95	18	115	293	12 ,,
5·13	7·17	28 July	123	—	—	2	1	72	153	—	15	218	148	71	14	60	29	47	128	12 ,,
																				5 ,,

APPENDIX No. XV.

THE PARKES MEMORIAL PRIZE.

Surgeon-Major-General J. JAMESON, M.D., *President of Committee.*

Surgeon-Colonel J. LANE-NOTTER, M.A., M.D., *Treasurer.*

Surgeon-Major R. H. FIRTH, F.R.C.S. Eng., *Secretary.*

Prize Essay Medallists.

1883. Surgeon R. J. POLDEN, Indian Medical Service.
1886. Surgeon A. DUNCAN, M.D., Indian Medical Service.
1889. Surgeon R. H. FIRTH, F.R.C.S. Eng., Medical Staff.
1892. Surgeon-Captain R. H. FIRTH, F.R.C.S. Eng., Army Medical Staff.
1895. Surgeon-Major R. ROSS, Indian Medical Service.

The following is the subject for the next prize:—

"THE ETIOLOGY, PREVALENCE, AND PREVENTION OF DIPHTHERIA."

The Prize is Seventy-five Guineas in Money and a Bronze Medal, and is awarded Triennially.

The Competition is open to all Medical Officers of the Army, Navy, and Indian Services of Executive Rank on full pay, with the exception of the Assistant Professors of the Army Medical School during their term of Office. Essays to be sent to the Secretary of the "Parkes Memorial Fund," Royal Victoria Hospital, Netley, on or before the 31st day of December 1897. Each Essay to have a Motto, and to be accompanied with a sealed envelope bearing the same Motto and containing the name of the Competitor.

APPENDIX No. XVI.

THE ALEXANDER MEMORIAL FUND.

TRUSTEES.

Surgeon-Major-General Sir W. A. MACKINNON, K.C.B., Q.H.S.
Surgeon-Major-General J. Jameson, M.D., Director-General.
Deputy-Surgeon-General W. G. DON, M.D.

COMMITTEE.

Surgeon-Major-General J. JAMESON, M.D., Director-General, *President*.
Surgeon-Major-General Sir W. A. MACKINNON, K.C.B., Q.H.S.
Brigade-Surgeon-Lieutenant-Colonel A. F. S. CLARKE, M.D.
Brigade-Surgeon-Lieutenant-Colonel W. JOHNSTON, M.D.
Deputy-Surgeon-General W. G. DON, M.D.
Surgeon-Major W. G. A. BEDFORD, M.B., *Honorary Secretary*.

PRIZE ESSAY GOLD MEDALLISTS.

1870. Assistant Surgeon A. B. R. MYERS, Coldstream Guards.
1873. Surgeon F. H. WELCH, F.R.C.S. Eng., Medical Department.
1876. Surgeon-Major J. H. PORTER, Medical Department.
1879. Surgeon JOHN MARTIN, Medical Department.
1882. Surgeon-Major F. H. WELCH, F.R.C.S. Eng., Medical Department.
1885. Surgeon JOHN MARTIN, Medical Staff.
1888. Surgeon R. H. FIRTH, F.R.C.S. Eng., Medical Staff.
1891. Surgeon R. H. FIRTH, F.R.C.S. Eng., Medical Staff.
1894. Surgeon-Captain C. BIRT, Army Medical Staff.

At a meeting of the Committee held at 18, Victoria Street, S.W., on 26th April 1894, the prize of 50*l.* and Gold Medal of the value of 10*l.* was awarded to Surgeon-Captain C. Birt, Army Medical Staff, for the best Essay on "The Treatment of Wounds and Injuries of the Abdominal Viscera, as "likely to be met with in Military Practice."

The essays of the unsuccessful competitors will be returned on application to the Honorary Secretary before 31st December 1896. Those of the unsuccessful competitors on the former occasion have, in accordance with the rules, been destroyed.

The subject for the next competition is "Micro-organisms as Factors in "the Production of Phthisis; the Influence of Military Service upon the "Disease, and Suggestions for its Prevention in the Army."

Essays must reach the President of the Committee on or before 31st December 1896.

Essays are to be legibly written, superscribed with a brief motto, and accompanied by a sealed envelope similarly superscribed, containing the name and address of the author.

No essay shall exceed in length fifty pages of ordinary printed octavo, which may be estimated as amounting to 20,000 words. This limit is exclusive of tables which may be added in the form of appendices.

The competition is limited to executive officers of the Army Medical Staff on full pay; but Professors and Assistant Professors at Netley are not allowed to compete while so employed.

By order of the Committee,
W. G. A. BEDFORD, Surgeon-Major, *Hon. Sec.*